THE DIVERSITIE of Salts and Spirits MANTAINED.

OR,

The Imaginary Volatility of some Salts *and Nonentity of the* Alcali, *before Cremation, and Identity of all* Alcalies, *all* Volatil Salts, *and all* Vinous Spirits, *by an onely* LAMP-FURNACE *resolved into real* Improbability.

By way of Animadversions, upon *Dr. D. C.* his 3 Papers, communicated to the *R. S.* and insert in the 9. *Vol.* of the *P. T.*

Together, with A New *System*, of the Order and Gradation, in the Worlds Creation.

AS ALSO,

Scurbie Alchymie discovered.

By MATT. MACKAILE Apoth. and Chirurg. *Alias*, Chirurgo-Medicine.

ABERDEEN,
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TO
The Right Honorable Noble-Men, and much Honored Gentle--Men, within the SHIRES *of* MARR *and* MEARNES.

Right Honorable, and
Much Honored.

GRatitude to *Benefactors*, being connaturall, not only to Reasonable, but also to Sensitive-Creatures, I could not but lay hold upon this Opportunity, of giving this Testimony of mine: there being none of Your *Lo.* and very few of Your *Ho.* to whom

whom I have not had the Honor to doe Service, or give Advice in my Station. I thought it my duty, thus to addreſs the following Animadverſions, that they may be sheltred under Your Patrociny; and that as a moſt deſerved and unfeigned Demonſtration of my gratefully reſenting the many Obligations conferred upon me; which I deſire to doe, with all the due Circumſtances of Thankfullneſs, and poſſible Obſervances, which can be attained by

Right Honorable, and
much Honored,

Your *Lo.* and *Hs* moſt obliedged and humble Servant.

Matt. Mackaile.

Aberdeen April 21.
1683.

The

The Author, his Apologetick-Epistle,

To the Right Honorable Members of the ROYAL-SOCIETY at *LONDON.*

Right Honorable,

I Have always lookt upon the Designe of Your Society, *as the most worthy and effectuall Expedient, for the advancement of true Knowledge; for Your serious Indagations into the Mysteries of Nature and Art have been so sedulous and successfull, that Your Fame hath not only diffused it self over all* Christendome, *but also deservedly procured unto You, the Admirations of all Learned Men, amongst whom I dare not, list my self, save as to the desire of being One: for I doe ingenuously acknowledge, that I never had the Capacity, nor Opportunity of Means, tho much more than I did either deserve, or well improve. I do*

much

much honor Dr. Daniell Coxe, *as one wh*
ſeriouſly deſigneth the advancement of tru
Literature; *aſſuring you and Him as a Mem*
ber of Your Society *that all my Deſigne i*
to throw my Mite *towards Your* Treaſury
(*where I have one already, tho* Incognito
Viz. The Account of the Tydes abou
the Orcades *which I did communicat t*
our very honorable Countrey-Man, Sir Ro
bert Murray, *in the Year* 1666; *which h*
cauſed inſert in Your Philoſophical-Tranſ
actions, Nov. 17 1673. *in the 7 Volum*
wiſhing, that Your Copel *may find it with*
out the Alley *of Vntruth, and of a true*
Philoſophicall Impreſs and ingenuouſly decla
ring, that Your very Caſtigations ſhall b
moſt acceptable unto Him, whoſe Deſign
not, vainly to contradict, any Inginiou
Perſon, but only, according to my Abilit
to advance the knowledge of the Myſteries
Nature and Art; in teſtimony whereof
will adventure to ſubſcribe my ſelf

Your Lo. and Ho. moſt
humble Servant,

Matt. Mackaile.

To the Courteous

READER,

I know, that this Attempt will be admired by many; and undervalued by ſome, only becauſe of its *Climat* and *Author*, living ſo farr *North*, where the *Cold* is ſo intenſe, that it will not permit a *Philoſophicall Fire* to laſt long, for trying Experiments; which ſucced beſt, when aſſiſted by *Aurum* (*non fulminans, ſed*) *fluens*. I acknowledge, that I may be juſtly lookt upon, as one who hath ſcarce paſſed the Threſhold of a *Laboratory*, having been chiefly

chiefly buſied in Chirurgicall and Pharmaceuticall Operations, and only, divertiſed my ſelf with ſome Chymicall, and thoſe ſuch only as were inſervient to *Medicine*. Yet a rude *Fisher*, who had ſeen *Hecla* in cold *Iceland*, may endeavour to convince others, of the certainty of *ſubterraneall Fires*, alſe confidently as a polite *Signior*, who hath ſeen *Ætna*, in hot *Sicily*, and a *Ships-Boy* going to the Top-gallant, may diſcover the Maſter miſtake from the Top, in taking ſhelves of Ice, for Mountains, or diſcover where a Leck is, by rimishing the Hould. And the *Sentinell Perdu*, lying upon the ground, may ſooner diſcover to the *Councill of War*, the Enemie working

working below, than a Souldier upon Horſs-back can. My chief Deſign is, to imitat *Caleb* and *Joshua, who oppoſed the reſt of the Spies, who* (tho they *brought of the pleaſant fruits*, yet) *brought up an evil report, upon the pleaſant Land. Numb.* 13. 32. Moreover, ſome will look upon me, as *a Medler in things too high for me* (who *have* therefore *ſtudied to behave my ſelf quietly and mildely*) and upon this Diſcourſe, as ignorant people do upon the lately invented *Wind-Gun*; which yet, in a good hand, will hit the *Mark*, without *ſmoke* or *noiſe*, alſe ſoon as any other, and a common *Flint*, will kindle *Powder*, alſe ſoon as an *Agat*. I ſhall only ſay this for my ſelf, that I

am courting *Knowledge*, as a *Poor Man* doeth a *Rich Miſtreſs*, which is no *Treaſon*; and I would rather be the Author of one Sheet, which I may own, and ſome will think worth the reading, than be conſtantly talking of *great Feats*, which dare not be offered to *publick view*. As *Dr. Coxe* his Writings, have occaſioned theſe Notions in me, I wish They may produce better in Him, tho to their own overthrow; and that we may be like *Flint* and *Steel*, kindling ſuch a Fire of *Trueth*, as may inflame the Atoms of *Untruths*, and diſſipat them into *ſmoke*. As for Undervaluers, who know little or nothing, of the *Analogie* betwixt the *Operations* of *Nature* and *Art*, I adviſe them to ſtudie

the

the ſame more, and not be rash with their *Criticks*, but rather charitable in their Verdicts, and particularly towards ſuch as my ſelf. For, ordinarly, you will find leſs *Ley'd money*, and Clandeſtinely coyned by *Tinkers*, in a Poor-mans *Cash*, than in a Rich-mans *Treaſure*. I deſire to be excuſed for my Method, to which I was conſtrained by that of *Dr. Coxes*, in his 3 Papers; out of which I made my Excerptions at home; but the moſt of my Animadverſions in my Journey to, when at, and in my returne from *Edinburgh*, in *July* 1680, which doeth plead for pardon, from all Ingenuous Perſons, to any other Eſcapes.

I doe acknowledge, accurat

Philoſophers may look upon this ſmall Treatiſe, as a confuſed Maſs of Arguments. The reaſon whereof is, my writing them at ſeverall occaſions, as they came into my minde (and eſpecially when I was in the Countrey;) as particularly the laſt half of the Introductory Preface, and the third Anſwere to the firſt Aſſertion, (which begins at the end of *Pag.* 25, and endeth with *Pag.* 30.) denying the Præexiſtence of the Alcali; were not writ, till *Jan.* 1683. Therefore if there be any coincidence of Arguments, I deſire that it, and the Method alſo, may be both excuſed, ſeeing the more ſerious avocations in my Employment, did hinder my reducing them unto a better

better, becoming a Pretender (the greateſt Title I dare aſſume) in or to Philoſophy. But I am hopefull and deſirous, that the Ingenuous will pardon that fault, ſeeing the Treatiſe doeth otherwiſe contain alſe much as could be expected from an Apothecary, who did never ſee any Writting, mantaining the *Diverſity*, or proving the *Præexiſtence*, after mentioned in theſe Animadverſions, which are offered to thy Conſideration, by

Thy Humble Servant,

M. M.

To his worthy Friend

Mr. MATTHEW MACKAILE,

Apothecary and Chirurgeon in Aberdeen

On his Ingenious Animadversions following.

DId others know You half so well as I;
Nor could they You, nor what is Yours decry
Did you not tell it, hardly any would
Suspect the Climate where you live were cold.
Though I were silent, yet this Book doth shew
What Philosophick Fyres are Nurs'd in You.
Not such wilde Flames as lodge in some which claime,
(Though most unjustlie) to that sacred Name.
Witness that lovely Notion you express,
How first the World was put in this Dress:
Some Brainsick Men, talke of the Atoms daunce,
And how they did each others hooke by chance;
And jump'd and reel'd, and then did fall to be
At last establish'd in the Formes we see;
And thus they say, this Fabrick had its rise,
What Fools were these? tho they themselves thought wise?
But you repare to Oracles Divine,
And by the Glorious Light which there doth shine,

You

Your Lamp is kindled: there's an Harmonie
Betwixt theſe Truths, and your Philoſophie.
And in the Syſtem here expreſs'd by you,
The Truth is Old, and yet the Fancie's New:
Here you're too juſt to fear the Criticks Rod,
You give what's due to Nature and to GOD.
Into your former Writings you impart,
Some uſefull Secrets of your healing Art.
And whoſoever reads this Treatiſe ſees,
How deep's your reach in Chymick Myſteries.
That Nameleſs Author whoſoe're he was
Who calleth each Apothecarie, Aſs;
Should he but read your writings, would for ſhame
Or burn his Book, or ever hide his Name.
That Miſtreſs KNOVVLEDGE, whom you court with pains,
Is kinde to you. You Court her not in vain;
Go on my Friend, and lett this be your Joy;
She hath not been, you ſhall not find her Coy
And though your Modeſtie a Mite it call,
Which you in Learnings-Treaſure caſt, yet all
Who Learned are, a great Gift will it deem,
And for Your Offring, will Your ſelf eſteem.

I. B.

ADVERTISEMENT.

The words following, ſhould have been inſert Pag. 8. *immediatly before theſe. Moreover* Pag.

But ſeeing the ſame Author, *Dav. von. der Bec* *Pag.* 200, proveth the *præexiſtence* of *Ideas* *Mans Blood*, by this Experiment --- *qui eunde recentem & calentem, ſpiritibuſque adhuc turg dum cucurbitâ exceperant, ad ſpiritum alind medicamenti genus inde parandum. Obſervarun in eo varias humani corporis in eſſe Ideas, ac tand quoque phantaſma, quoddam humanum, magitu quendam edentem, non ſine terrore adſtantium.* doe humbly conceive, that we have alle much (not more) Reaſon to concede the *præexiſtence* the real, tractable, guſtable, viſible, and durab *Alcali*, before *Cremation*; and particulary in S *Marine*, which is ſo eaſily deprived of its *ſulph reous* and *Acid* parts, by a ſhort abode in the *Fir* which diſcovereth ſo conſiderable a quantity of *Alcali* to have *præexiſted* in it.

I ſay, ſhall we concede the *præexiſtence* of *Idea*, and *Phantaſma*, in a fraile *Animal*: becau the *Action* of *Fire* doeth make them appear; an deny the *præexiſtence* of the moſt durable *Alcal* in *Vegetables* (eſpecially) which are of a mo *fixed* conſtitution, than the *Animals* are?

The Introductory Preface.

THat the following Animadversions may be the better understood, by such as are not knowing in *Chymie*, I thought fit to premise these few lines; concerning the *Principles* and *Termes* of the *Art*.

1. All sublunary Bodies, or Concrets, about which this Art is conversant, are divided into three *Families* or *Tribes*; viz. *Animal*, *Vegetal*, and *Mineral*.

2. The constituent *Parts* or *Principles* of all those are, *Salt*, *Sulphur*, *Mercurie*, (or *Acid Spirit*) *Water* and *Earth*. The first three, are called *Principles* κατ' ἐξοχὴν, because active, and endued with severall vertues. The last two, are scarce allowed the Title of *Principles*; because of their uselesnes: being by distillation deprived of the other three; which yet none, but the first conjoiner, can totally separat from the *Earth* and *Water*.

3. *Salt* is either *Natural* (as *Marine*, *Gemmæ*, and *Nitre &c.*) or made (but rather extracted) by Art; and so called *Artificial*,

4. The *Natural Salts* contain, *Sulphur*, and are, by distillation, resolvable into an *Acid Liquor* or *Spirit*.

5. The *Artificial Salt*, is either *Compounded*, or *Simple*.

6. The *Artificiall Compounded Salt* is extracted out of the *Juices* of *Vegetables*, and is called their *Essentiall Salt*; as *Tartar*, or *Winestone*, (from the juice of *Grapes*,) and *Sugar*, *&c.* I call this sort of *Salt*, *Compounded*: because it is by distillation, resolvable into the forementioned Principles.

7. The *Artificial Simple Salt*, is that which is extracted out of Concrets; and is either *Volatil*, or *Fixed*. These I call Simple: because they were never (till of late) alledged to be resolvable into Heterogeneous Parts; which every Artist can not do.

8. The *Volatil Salt* aboundeth most in *Animals*; out of which it is got by distillation, and is found in a dry forme, sticking to the sides of the Recipient; whether the heat of the fire did drive it.

9. The *Fixed Salt* is extracted by *Water*, out of the *Ashes* of any Concret (especially *Vegetal*) when they are calcined, or burned, till they be free of all *inflamable sulphur*, and become as white, as is possible to make them. And this is called the *Alcali*; which dissolveth by *deliquation* (attracting the Air) and boyleth up with *Acids*.

10. *Mineral*

10. *Minerals* afford little, or none of these two *Salts*; yet no Artist doubteth of their containing both; but especially most of the *Fixed*.

11. *Sulphur*, is the inflamable part of any Concret; and appeareth either in a Greasie forme (when the Concret is distilled without previous Fermentation) and is called *Oyle*, or in an Aqueous forme (after previous Fermentation) and is called *Spirit*; as the *Spirit of Wine*, *Aqua Vitæ*, *&c.* which are inflamable, whereas the forementioned *Spirits*, into which *Salts* are resolved by distillation, are not at all inflamable.

12. *Mercurie*, or *Acid Spirit*, is of an Aqueous consistence, sharp to the Taste, and not inflamable, separated from *Animals* or *Vegetables*, when distilled, *per se*, without previous Fermentation.

13. *Water*, is the liquid, insipid, and not inflamable part, which, by distillation, is separated from Concrets, before, or after *fermentation*; and is also called *Phlegme*.

14. *Earth*, is the hard and sandie part of any Concret, which remaineth after the separation of the forementioned substances; and it is called *Caput Mortuum*.

15. *Fermentation*, is the intestine motion of the Heterogeneous forementioned substances, when they are becoming separated from one another; and is most evident in *Liquids*, as *New-Wine*, *Ale*, *Beer*, *Sider*, *&c.* So this is a second

way, of resolving Concrets, into different parts or Principles.

16. After *fermentation*, the *Sulphur* of Concrets appeareth, either in a *Greasie* forme, (as *Butter* in a Churne) or in an *Aqueous*; as *Brandie*, or *Spirit of Wine*, *Aqua Vitæ*, *&c.*

17. *Calcination*, is the reduction of any Concret into Ashes, by burning.

18. *Lixiviation*, is the dissolving those Ashes in Water, for extracting the *fixed Salt*, which is called the *Alcali* of the Concret, as was said.

19. *Sublimation* (properly) is, when a Concret (as *Brimston*) or the volatil parts (as the *flowres of Antimony*) or *Volatil Salt* (as of *Animals*, and their parts) is by the heat of fire, caused to ascend out of one Vessel (which is called *Alndel*) into another, where it appeareth in a dry forme; as the *flowres of Brimston*, the *Salt* of *Harts-horne*, *&c.*

20. A *Crucible*, is an Earthen Pot, wherein *Metals* are melted, or other Concrets burned unto ashes.

21. *Vineus Spirits*, are the Aqueous and inflamable liquors, which, after Fermentation, are, by distillation, separated from the Juices, or decoctions, of any *Vegetables*; as *Brandie*, *Aqua Vitæ*, *&c.*

22. *Fixed*, is that which is not easily moved or removed by the fire. As the *Alcali*, *Gold*, *Silver*, *&c* amongst *solids*; and *Water*, *Viniger*, *&c* amongst *liquids*.

23 *Vo-*

23. *Volatil*, is that which is eaſily moved, or removed, out of its place, by the heat of the fire; as the *Volatil Salt*, *Mercury*, (*i. e. Quick Silver*) and all *Vinous Spirits*.

24. *Vitriol*, is either *Natural*, or *Artificiall*. The *Natural* is generate in the Bowels of the Earth, by the action of ſome Acid Juice, operating upon, and diſſolving a *Mineral*, as *Copper*, or *Iron*; and is that which giveth Taſte to *Mineral Waters*, as *Peter-Heads Well*, *New-Mylns Well*, *&c*, and is, for the moſt part, from *Iron*. The *Artificial* is made, by any Acid ſpirits diſſolving a *Mineral*, as *Iron*, *Steel*, *Lead*, *&c*. All which, are called the *Salts* (tho improperly) of the *Metals*, whereof they are made, becauſe of their diſſolvableneſs amongſt Water; and that from *Lead*, is alſo called its *Sugar*: becauſe of its ſweet Taſte, reſulting from the combination of the *Salt* in *Vinegar* (whereby the *Lead* was diſſolved) and the *Sulphur* of the *Metal*.

25. *Alcoolized*, when concerning Solids, it is alſe much as to ſay, moſt ſubtilly pulverized; and when of Liquids (eſpecially *Spirit of Wine*) it ſignifieth, to be made moſt ſubtile, and free of all Aqueous and not inflamable mixture; which is done, by frequent, or reiterat *diſtillations*, called *rectifications*.

The Learned and ingenious *Doctor William Bacon* (in his *Key to Helmont* [Printed 1682.] C. 1.) *beleeving, with the profound Helmont, that Water is the ſole material Principle of Generation*,

Generation, *because Moses writeth*, Genes. 1. 2. The Spirit of GOD moved upon the face of the Waters; or, as the *Latin* hath it, *Spiritus DEI incubabat superficiei Aquæ*, *as a Bird on her Eggs for procreations sake*, *I presume its plainly implyed*, *that GOD*, *by his infinit power made these the immediat causes of the Creation*. Concerning these words, with all due respect unto those two learned Authors, I do humbly propose these things to be considered, as

A little System of the order and Gradation, in the Worlds Creation.

1. THe *Creation* did preceed this *Incubation* of the Spirit. For,

2. Before this *Incubation*, we read (*v.* 1.) of *God's creating the Heaven and the Earth*, by which last, the *English Annotators* do understand, *that great material Mass*, *made up of Earth and Water*.

3. Whereas (*v.* 2.) its said, first, *The Earth was without Forme and void* (that is, according to their *Annotations*, *without any particular and proper Forme*, *and void and empty of that distinct nature*, *vertue and vigour*, *and of that comely order*, *which GOD afterwards gave unto it*) and in the second place, and end of the verse, *The Spirit of GOD moved upon the face of the Waters*; this *motion* seems not to have any causality in it as to the *Creation* of the *Earth* and *Water*; but onely as to the production of *Salt*, *Sulphur*, and *Acid Spirit* in them, and that out of *created*

and praexiſtent matter (as afterwards *Vegetables &c.* were produced out of the *Earth* ſo impregnat *&c.*) which were to be the inferior Agents (ſubſervient to the *Spiritus Salino-Sulphureus*, the great influencer of all ſublunary changes in Concrets) in the various Acts of *Generation*, which were to follow the *Creation*. In which Acts, the *Earth* and *Water*, ſo impregnat with *Salt*, *Sulphur*, and *Acid Spirit*, are like the *Metallick Wheels* (formed, or, by their faſhions made capable of performing their reſpective motions, tho contrary to one another, as the alledged motions or natures of the *Acid* and *Alcali Sulphur* and *Water*, are to one another) of a *Watch*; the *Spiritus Salino-ſulphureus* being the *Spring* (or *Archeus*) and the Omnipotent GOD the *Artificer*, who by the *Key* of his powerfull *Providence*, did ſet all in motion at firſt, and doth dayly keep them at it.

4. The probability of the premiſſes, doth further appear, from the *Annotators* affirming concerning that motion. *The Original properly ſignifyeth the hovering of a Bird over her Young, to cheriſh and preſerve them: and it importeth the effectuall quickning power of the Holy-Ghoſt, which upheld, ſuſtained, and gave vertue, to that great and generall Heap* (of which the Poet ſaid

Ante mare & terras, & quod tegit omnia Cœlum,
Unus erat toto naturæ vultus in Orbe,
Quem dixere Chaos

viz. Before Generation began, or the Heaven

was

was embelliſhed, with its afterward formed, beautifull Luminaries) *which thereby was formed into particular works, in the manner and order ſet down in the reſt of the Chapter.* To which I muſt add *Pareus* his words, *in Comment. in Geneſ.* 1. 2. *Et Ambroſius, ex quodam Syro annotant, verbum hoc ſignificare incubationem volucris, ova calore viviſicantis.* Which ſignification ſhould rather be derived from the forementioned import, *viz. the effectuall quickning power of the Holy Ghoſt, &c.* than this, from it.

I do moſt humbly, and with all poſſible and deſerved reſpect unto the *Holy Ghoſt* believe, that the forementioned Motion, or Incubation [as explained by the *Rev. Annotators*] was liker to the *Cocks fœcundating incubation upon the Hen*, already containing Eggs, which no incubation of a Hen, can convert into Birds, if the Hen did not [before her excerning them] ſuffer the incubation of the Cock; and that the powerfull command [*v.* 11.] was moſt like to the Hens incubation upon the Eggs, alreadie fœcundat by the Cocks incubation upon the Hen.

The truth of the premiſſes may appear, from *Luke* 1. 35. compared with *Gen.* 1. 2. upon both which places, the learned *Mr. Pool*, in his *Synopſis Criticorum*, mentioneth ſeverals, who [tho they do not directly favour this opinion, yet] do not write any thing contrary to it. Moreover, before this *motion* or *incubation of the Spirit upon the Waters*;

Waters, they and the Earth were but *rudis indigeſtaque moles*, and unactive Principles, for producing the Generation, commanded *v.* 11. *Let the Earth bring forth Graſs &c*, which Generation (but rather Formation, as will appear hereafter) was promoved by the active Principles of *Salt*, *Sulphur*, and *Aeid Spirit*, by the Motion or Incubation of the Holy Ghoſt, produced in the Earth and Waters, by giving unto ſome of that præexiſtent Matter, new Configurations (durable untill the laſt Conflagration, 2. *Peter* 3. 10.) with power to increaſe and multiply themſelves, in the acts of Generation, wherein they were afterwards to be imployed. At which time alſo, the *Spiritus Saline-ſulphureus Univerſi* was produced, or made, in them, and in the Air. Which is homologat by *Pareus*, ibidem---*Spiritus Dei inſufflabat ſuper faciem Aquarum. Hoc eſt, Maſſa rudi, emortuæ, & mutili, generandis rebus, vim vitalem quaſi aſpirabat.* And, *ibidem---Auguſtinus --- Non ita ſuperferebatur, ſicut Oleum Aquæ --- ſed vi quadam effectoria, ut illud cui ſuperfertur efficiatur & fabricetur.*

Moreover, when our bleſſed Saviour [*by whom the Worlds were made. Hebr.* 1. 2.] wrought his firſt *Miracle*, *Iohn* 2. 7, 8, 9. *converting Water into Wine*, did he not operat after the ſame manner, produceing in the *Water* [impregnat, as before ſaid] a *ſulphureous ſpirit*, *&c.* which *Art* extracteth out of *Wine*, tho not perceptible,

by our senses, in the *Wine*, according to *Hebr.* 11. 3. --- *the Worlds were framed by the Word of GOD, so that things which are seen, were not made of things which do appear*; *viz.* whilst in the *Concrets*, whereof they are constituent *Principles*. I say, our *Saviour* did here of *Water* make *Wine*, by his Omnipotent Power supplying the want of the *Vegetative Life* of the *Vine*, which in an ordinary and naturall manner converteth *Rain-Water* [impregnat, as is said with the *Alcali*, *Sulphur*, and *Acid Spirit &c*] into *Wine*, containing such a *sulphureous Spirit &c* as Art separateth from it. And *which maketh glade the Heart of man. Psal.* 104. 15. which Opinion is very consonant to *Mr. Pooles* words, in his *Synopsis Criticorum*, upon *Luke* 1. 35. *Spiritus sanctus dabit sanguini tuo vim & efficaciam coalescendi in Corpus Christi --- Obumbrabit. i. e. supplebit defectum Matris.*

Likewise the *Pool of Bethesda* [*John* 5. 4.] its water was impregnat *virtute divina parata ad sanandum, Angeli ministerio*; as *Mr. Pool* hath it.

5. Earth is also a material Principle of, or in the Genefation of all Concrets; seeing both it and the Water, were first created, and called Earth; and the Denomination useth to be given to the *Potior pars*; which I thinke the Earth to be (as we now have it) out of which *Nitre* (that active Concret) *Gold*; *Silver*, *&c* are got.

6. As the Omnipotent (*Gen.* 1. 28.) did be-

flow

ſtow upon that little portion of the *Duſt of the ground*, whereof he formed Man *Gen.* 2. 7. the bleſſing of a fruitfull and multiplying faculty, for increaſing the number of the Individuals of his kinde; as alſo the like faculties upon the Fiſhes of the Sea, Fowles of the Air, and Beaſts of the Earth [*Gen.* 1. 22.] I do believe that by the ſame Almighty power he did beſtow the like bleſſing upon the active Principles [*Salt*, *Sulphur*, and *Acid Spirit*] for the increaſing of themſeves, in the multifarious Generation of Concrets [whether *Animal*, *Vegetal*, or *Mineral*] whereof they were to be conſtituent parts; eſpecially of *Animals* and *Vegetables*, which are ſo eaſily, and conſtantly reſolved into them, by Art.

7. I do believe, that by the *Spirits* forementioned *Motion* or *Incubation upon the Waters* [then ſurrounding the Earth, as the *Annotators* acknowledge] *Marine Salt* was produced in the Waters, and *Nitre* in the Earth: whereof both were void. Which Concrets abound with *Alcalies*, and were the immediat Matter, out of which all the innumerable different *Alcalies*, of the innumerable different Concrets, were formed. Moreover I am of opinion, that [our bleſſed *Saviour* having borrowed all his Similitudes from Realities] by the *ſavour of the Salt* [*Matt.* 5. 13. *Ye are the Salt of the Earth: but if the Salt hath loſt his ſavour, &c*] he meant the *Alcali*, wherein the Mordacity of the *Salt* reſideth.

8. In the 1. *Ch.* of *Geneſis*, *Creation* is primarily, and properly attributed onely to the *Heaven* [that is the ſuperior Orbs] and to the *Earth*, *viz.* that *great Maſs*, *made up of Earth and Water*. And as out of theſe two, all ſublunary Creatures (yea the Air [*v.* 7. called *Firmament dividing the Waters*, and alſo called *Heaven*] which is onely Water impregnat as is ſaid, and rarfiied, as is evident from the conſtant Tranſmutations of them, into one another) were made by His Omnipotent *FIAT*; ſo out of that matter, in the 1. *v.* called *Heaven*, after the ſame manner, or by the ſame Omnipotent *FIAT*, God firſt made the *Light* [in imitation of whom, Artiſts are now buſied in makeing *Matter Luminous*, or rather extracting ſuch matter out of ſome Concrets] *v.* 3. in the firſt day; which afterward he divided into many *greater* and *leſſer Lights* [*v.* 14. 15. 16.] upon the fourth day. And tho, *v.* 27. it is ſaid, *God created Man*; as alſo, *v.* 21. *He created great Whales*; the former is onely in reference to Mans Immortall Soul (which was created properly) or becauſe of Man's excellency, conſiſting of a Spiritual and Corporeal being; the conjunction of which, for its extraordinaryneſs, is dignified with the Title of *Creation*. And the latter, is in reſpect of the *Whales* huge bigneſs, above that of all other Animals.

The truth of theſe things will appear, if we conſider, firſt, that *v.* 26. it is ſaid, *Let us make*

Man.

Man. And *chap.* 2. 7. *God formed Man of the dust of the ground* [and then] *and breathed into his Nostrils the breath of Life, and Man became a living Soul.* Secondly, *chap.* 1. *v.* 20. *God said, let the Waters bring forth abundantly, the moving Creature, &c* and *v.* 21. --- *Which the Waters brought forth*; viz. out of præexisting Matter. So that in the making of the *World*, there was, First, *Creation* of Matter, out of nothing. Secondly, *Formation* [1.] of the active or seminal Principles, in that Matter. [2.] and seting them on worke. [3.] by their working, the different Species of all naturall Bodies were formed, in their naturall perfection. The *World* being thus perfectly made [4.] the worke of *Generation* did begin; and not till then.

This Gradation, in the Worlds Creation [which *Gen.* 2. 1. is called, *a finishing of the Heaven and the Earth, and all the host of them*] is most evident from the three first verses of the same Chapter, where is no mention of *Creation*, but in the end of *v.* 3. --- *Which God created and made*; which words are varied upon the Margine, --- *Created to make*; that is, made out of previously created Matter.

About 14. dayes after I had finished the forementioned *System*, *Jan.* 23. 1683. having found and read the *R. Gilbert Burnet D. D.* his elaborat *Life and Death* of Sir *Matthew Hale*, *&c* I could not forbear the subjoining [in relation to the maintaining

taining those constituent Principles of all Concrets
what the learned *Dr.* had cited *pag.* 139. *&c* ou
of the most famous Chief Justice *Hale*, his *Origi*
nation of Mankind, in which the Author havin
told the different Opinions of the *Epicureans*, *Ca*
tesians, *Aristotelians*, *&c* concerning a curio
Watch which they had never heard of, or seen, u
till they found it accidentally in a Field or Forrest
At last the Artist [*having heard their different s*
lutions of the Phænomenon, *and spending all thei*
Philosophizeing upon it] *tels them*, *they had disc*
vered very much excellency of Invention, *touchin*
this Piece of Work before them, *but you are all m*
serably mistaken concerning it: *for it was I th*
made it, *&c.* Then the Learned *Hale* subjoyns ...
This plain and evident discovery renders all the
excogitated Hypotheses of these Philosophical Ex
thusiasts, *vain and ridiculous.* — *And much*
the same nature is that disparity of the Hypothes
of the Learned Philosophers, *in relation to the O*
rigination of the World and Man, *after a gre*
deal of dust raised, *and fancifull Explications*
and intelligible Hypotheses. The plain, *but divi*
narrative by the hand of Moses, *full of Sense a*
Congruity, *and clearness*, *and reasonableness in*
self, *does at the same moment give us a clear disc*
very of this great Mystery, *and renders all t*
Essays of the generality of the Heathen Philosopher
to be vain, *invident*, *and indeed inexplicable The*
ries, *the creatures of Phantasie*, *and Imaginati*
a

and nothing else.

I hope this *Citation* is very proper for mantaining the 5 Principles, *Earth*, *Water*, *Salt*, *Sulphur*, and *Acid Spirit*, and their origination, in to the foresaid *System*, and that in opposition to the *fortuitous concurse of Atoms*, *Materia subtilis*, *Globuls*, and *Angles*, *&c.*

Then, whosoever denyeth the *praexistence* of those active Principles [especially of the *Alcali*] before the Action of Fire, pleadeth for the Generation of all things out of *Earth* and *Water* [which two are Principles, *jure Divino*. Gen. 1. 1.] destitute of all active Principles, by a fortuitous concourse of Atoms; and are in *Philosophy*, like the *Pelagians* in *Divinity*, who did attribute so much freedom to the Will, in Convertion to GOD, that the Learned *Io. Owen*, calleth his *Display of Arminianisme*, a *Discovery of the old Pelagian* Idol Free-Will, *with the new Goddess* Contingency. For those Philosophers attribute to the Fire [which is *Agens necessarium*] a free or fortuitous power of producing the *Alcali*, at its pleasure, in some Concrets, and not in others.

The

THE Diverſity of Salts and Spirits, Mantained.

OR,

The Imaginary Volatility of ſome Salts *and Non-entity of the* Alcali, *before Cremation, and Identity of all* Alcalies, *all* Volatil Salts, *and all* Vinous Spirits, *by an onely* LAMP--FURNACE, *reſolved into reall* Improbability.

By way of Animadverſions, upon *Dr. D. C.* his 3. Papers, communicated to the *R. S.* and inſert in the 9. *Vol.* of the *P. T.*

IN this learned *Age*, that valueth moſt the *Experimental Philoſophy*, which by Reaſons and Experiments conjunctly, proveth all its Aſſertions; they are the more takeing, when

the Experiments are Accurately and faithfully related, and not onely Didactically proposed.

The *first* whereof I shall seriously endeavour, as also to eschew the *last* (which is a Ridiculous thing) and therefore shall not be found in the following Animadversions, upon the *Drs.* three *Discourses*; the first whereof, *Concerning a way to extract a Volatil Salt and Spirit out of* Vegetables, begineth *pag.* 4. [in the 9 Volum of the *P. T.*] and endeth *pag.* 8. bearing Date *Mar.* 25. 1674. The second, *denying the praexistence of Alcalisat or Fixed Salts, in any subject, before its being exposed to the action of the Fire*, begins *pag.* 150. and ends *pag.* 158. *Oct.* 26. 1674. And the third, *of the Identity of all Volatil Salts, and Vinous Spirits*, begineth *pag.* 169. and endeth *pag.* 178. *Nov.* 13. 1674.

In his first *Paper*, *pag.* 4. he writeth thus *The Leaves of any Vegetable fermented --- will yeeld, besides a great quantity of Liquor, much thick black Oyl. --- The Liquor being separated from the Oyl, and distilled in a tall Glass body, a Volatil Spirit sublimes, which after one, two or three rectifications, becomes perfectly urinous --- like well rectified Spirit of Harts-horne &c.*

Here is not one word of a *Volatil Salt*, But *p.* 6. in his 10 *Note*, he affirmeth, *that onely some Herbs, as Winter Savory, Sage, &c. in the first Distillation, yeelded a copiously Volatil Salt, in a dry forme, And* (in his last *Paper*, *Oct.* 26. 1674. *p.* 151) *being*

wel

well dried, upon ſimple incineration, yeelded an Alcaliſate Salt. And (*Note* 22) *ſome Herbs, Moſſes, and Rudiments of Vegetation, and ſome Inſipid Seeds, yeeld a Volatil Salt, diſtilled without previous Fermentation.*

The *Dr.* ſhould have given ſome Reaſons, for all; or ſome of theſe ſtrange Emergents; but more eſpecially for *Inſipid Seeds, yeelding a Volatil Salt*, ſeeing in his 2. *Paper*, he argueth againſt *the præexiſtence of the Alcali in any Vegetable or Animal, from its not bewraying of its ſelf unto the Taſte, or by its effects.*

The moſt learned, expert, and accurat *Dr. Io. Zuelfer*, in the 71. *pag.* of his *Append. ad Animadv. in Pharmacop. Auguſtanam*, having write long ago, that, *Volatilia Salia, & quidem pure ſalſa, at plurimum ex Animalibus depromuntur*: *Dr. D. C.* ſhould have firſt proved, that theſe *Volatil Salts*, which he ſo eaſily ſeparated from thoſe *Vegetables*, were *pure ſalſa*, and not *Acido ſalſa*, ſeeing it is probable, they were onely of the laſt ſort, as he confeſſeth in his ſecond *Paper*, *Oct.* 26. 1674. *pag.* 151. thus, *moſt Vegetables* (and particularly the *Fern*, as he affirmeth *pag.* 176.) *whether Woods or Herbs, if burnt whilſt they are green, and with a ſmothering fire, yeeld Salts, which are far enough from Alcaliſate, being properly Tartarious; for they do almoſt exactly reſemble purified Tartar, and diſtilled, yeeld the ſame ſubſtances*; which do not prove them to

be *Volatil Salts* in the common Acceptation, that is, ſuch as are not reſolvable into *Heterogeneous ſubſtances*; of which Infirmity, he doth not accuſe any, (without controverſy) *Volatil Salts*; but onely the *Alcalious*, *which* (in that ſame *Paper*, *pag.* 153.) *may be divided into Oyl and Volatil Salt*, *by facil and natural Methods of procedure*, *which I my ſelf have many wayes effected in part*, (which might alſe well have been a Miſapprehenſion) *and a very worthy perſon*, *aſſured me*, *he hath frequently reſolved the whole body of Alcalies*, *into two diſtinct ſubſtances of Volatil Salt and Oyl*, *receiving of the latter a ſmal proportion*. Yet *pag.* 152. he firſt affirmeth and proveth, *Alcalies to reſult from the combination of the Acid and Sulphureous principle*; and then he rejecteth that Opinion, and affirmeth *it to reſult*, *from the union of the Volatil Salt*, *and the Oleaginous Principle*; without telling how they unite, and become ſo *fixed*, as to conſtitute an *Alcali*? or why the *Volatil Salt* is not fugat by the great heat, in *Calcination*, as ordinarly it is by a leſſer Warmth in *Diſtillation*? neither telleth he, what alteration they do undergo, when they do again become *Volatil*. 2. If thoſe his *Volatil Salts* be onely *Acido ſalſa* (like *Sal Armoniack*) as ſurely they are, he ſhould have obviat ſome Objections, which may juſtly be brought againſt their *Volatility*, which can not be comparable to that of the *purè ſalſa*, which for the moſt part, are onely afforded by

Animals

Animals; as the Learned *Zuelfer* hath affirmed: as also, that *Essentiall Salts, are of a middle nature, betwixt the Volatil and Alcalious, and are capable of being resolved into Acid Spirit, fœted Oyl, and an Alcali, by ordinary Distillation in a Retort*; whereas the proper *Volatil Salts*, are not accused of any such Frailty, or composition, but onely of complyance or *Coagulation*, sometime, with the not too highly rectified *Spirit* of *Wine*; as the same *Author* affirmeth, *in Animadv. in Extr. Absinthy. &c.* But it seems, *Dr. D. C.* hath fain upon a way of Sublimeing a little the *Essential Salts*; which yet doth not prove them to be *Volatil*; more than is the most *Fixt Alcali, which* (as himself afterwards acknowledgeth in his second *Paper*) *may be sublimed to great hight, by an intense degree of heat*; *or can be got out of the fuligo, near to the focus.* Likewise, tho a *Frog, &c* can jump a little into the Air, they are not therefore to be called *Birds.* Neither doth a *Metallick ball*, its fleeing a great way into the Air, prove it to be *Volatil*, as *Mercury*, which a little heat will dissipat into Fumes.

Pag. 7. *Note* 18. *Many of the Herbs, thus putrified, or fermented, swarme with Maggots* (*an Argument of the close and stedfast contexture, of the seminal Principle in Insects*; which Argument needs a no small Exegesis) *especially at the bottom, and in the middle, whether Flies and other Insects, can have no access, to deposite their Egs, and where the heat is so violent,*

that they could not possibly subsist.

Hence it is evident, that this *Dr.* beleeveth those *Animals* to be generat of a *Vegetable*; to which I answer, 1. It is more probable that those *Maggots* did proceed from the *Egs* or *sperme*, of some *Insects*, deposite upon the leaves, e're they were pulled, or put to Ferment. 2. He should have given some Reason, why *Flies and other Insects, could not subsist in so violent a heat*, which yet the *Maggots* did subsist in. In which inquirie, he would have had occasion to descant, 1. upon the Generation of the *Insect* called *Cricket*, which is ordinarly (if not onely) produced about *Ovens*, which are constantly in use, and consequently very hot, 2. Upon the Generation or production of the *Eels*, of late discovered in distilled *Viniger*, which did not ascend without also great a heat, as that by him mentioned.

Note, 19. *Yet the Volatil Spirit and Salt, is not afforded by these Insects* (which proveth them not to be *Volatil* in the common Acceptation) *for, having distilled separatly a great quantity of them, they yeelded no Volatil Salt or Spirit, but a liquor of a very different nature.*

The great *Zuelfer* (*in Append. ad Animadvers.*) having told, that *Volatil salts are chiefly got out of Animals*, this Dr. should have given solid Reasons, for this his disapointment, in not getting a *Volatil salt* and *Spirit*, where any Chymist, beliveth it to be; and obtaining it out of *Vegetables*, where

where none, but himſelf, did ever affirme it to be, as it is in *Animals*.

Pag. 8. *Note* 23. *Theſe* Volatil *ſpirits and ſalts, have not onely the ſame ſenſible properties, but alſo agree in all known effects and operations, with common Urinous* Spirits *and* Salts, *&c.*

The firſt part of this Aſſertion may be true; but as for the latter, I am ſure that no little time would ſerve to try Experiments, for proving the the ſame. And if there be any ground for expecting different effects, from what is Homogenious or Heterogenious to Mans body, ſurely the *Volatils* extracted from *Animals*, will operat much better, than ſuch as are thus got out of *Vegetables*. As, thoſe who feed upon *Fleſhes*, *Wines*, *Wheat-Bread*, and ſuch like, are more agile in body, and acute in ſpirit, than ſuch as are onely nowriſhed by *Fiſhes*, *Water*, and ſuch leſs ſpirituous Food. The contrary whereof, or the *Identity* mentioned in the *Title-Page*, whoſoever maintaineth, doth directly accuſe the *Almighty*, of *fruſtraneous acting per plura*; ſeeing he might have done *per pauciora*. Moreover his *Omnipotencie*, and *Wiſdom* is more pleaded for, by maintaining a *diverſity of ſalts and ſpirits*, than by pleading for their *Identity*. Neither is the Experiment tryed upon *Daniel*, *&c. who did onely eat Pulſe*, *and drink Water*, any Argument, againſt what hath been ſaid; ſeing they deſired that *Food*, to be free of what was *Legally unclean*; for which their ordinary *Food* was extraordinarly

ordinarily bleſſed of GOD.

Pag. 150. *Oct.* 26. 1674. *The Alcalizat* [illegible] *fixed ſalts of Plants, extracted out of their Aſhes after incineration, or out of Tartar calcined, do in my apprehenſion, neither praeexiſt in the* Vegetables *that afford them, before they were expoſed to the action of the Fire, nor do they differ conſiderably (I am certain not ſenſibly) from each other.*

The former part of this Poſition, he proveth thus. 1. *I never found that any* Vegetable (*or indeed Animal or Mineral*) *ſubſtance, did in the leaſt meaſure manifeſt to the Taſte, or by its effects, that it contained any ſuch* Salt.

To this it is anſwered, 1. In his firſt *Paper*, he affirmed, that *ſome inſipid Seeds did yeeld a Volatil ſalt*, which affecteth the *Taſte*, alſe much as the other. 2. Neither do *Blood*, recent *Urine*, *Harts-horne*, *Succinum*, *&c.* manifeſt to the *Taſte*, that they contain *Volatil Salts*, which not onely affect the *Taſte*, and *Touch* (as do the *Alcalions*) but alſo the organs of *Smeling*, and *Seeing*; as *Dr. D. C.* affirmeth, in the ſame place, the *Volatil Salts* of ſome *Plants* and *Roots* do the Eyes and Noſe, *viz. Onions*, *Horſe-Radiſh*, *Muſtard*, *&c.* which affecting *Effluvia* I muſt beleive to be onely *Spirits*, and not *Salts*, untill he ſhall exhibite them in a dry forme. Moreover, by neither *Taſte*, *Smel*, nor *burning in the Fire*, can *Butter* be diſcovered to be in *Milke*, ſo copiouſly as really it is. Likewiſe, it may be alſe rationally alledged,

ledged, that *Antimony* is neither *Vomitive*, *Purgative*, nor *Diaphoretick*, untill these Faculties be generat in it by the *Fire* and *Nitre*. But I believe the contrary, seeing of late, I did very easily acquire the *Vomitive faculty* of that *Concret*, without *Nitre*, or the *Fire* its *Tactus molis*. Also, it may be alse probably alledged, that the *Sulphur*, or *Oleum Ovorum*, is produced by the Fire, dureing their *Elixation*, and that the *Oyl* of *Almonds* is generat by *Contusion*; and that *Sperme* did not præexist, in the body, *ante Coitum*. Likewise that the heat of *Fire*, doth generat in every pound of sweet, soft, and liquid *Honey*, above half an vnce of a black, spongious, and hard *Coal*, about an vnce of an insipid, but pleasantly smelling *Phlegme*, and a great quantity of a most *Acid Spirit*. As also, that *fermentation* doth generat in *Milk*, great quantities of *Acid* and *Sulphureous* bodys. For my own part, I think that *Fire* concentreth the *Alcali* into the *Ashes*, as the *Cold* doth the *Spirit of Wine*, into the middle of the *Hogs-head*, when turned into *Ice*; and that the *Fire* doth no more alter the *Alcali* in produceing it, than an ordinary *Hen*, doth a *Duck*, which it produceth by sitting upon the *Eggs* of a *Duck*. But I will beleeve all those to præexist; seeing when the *præexistent Oyl* of any *Wood* is spent by flameing, its Charcoal again flameth, upon the addition of another *Oyl*. 3. The alleadged *Identity*, may be a sufficient Argument, to prove the *Alcalies præexistence*;

elſe the denyers thereof muſt give Reaſons, for the *Fires* not produceing of different *Alcalies*, out of different Concrets, it being a *Neceſſary Agent*, operating indifferently upon all Concrets, according as it findeth them conſtitute, of *Parts* or *Principles*; of which more anon.

In defence of the *Alcali*, its not præexiſting, if it ſhall be ſaid, *The fire cannot produce it in, or out of every* Concret, *becauſe of the want of* matter, *capable of ſuch an alteration, or configuration of its parts, as is requiſite to the makeing of the* Alcali (*as the* Fire *Liqueſieth* Wax; *and indurateth* Clay) yet it muſt be acknowledged, that where it is produced by the Fires aſſiſtance, Matter, capable of ſuch an alteration, was præexiſtent. Which is little, or nothing different from the acknowledging of the Præexiſtence of the *Alcali* it ſelf; ſeeing its Præexiſtence is moſt probable; *Nature* having produced two *Alcalies* (*viz.* the *Egyptian Nitre*, and the *Salt* of *Moffet-Well* aftermentioned) which are two ſufficient Witneſſes, proving the Præexiſtence, before Cremation, or Incineration.

Moreover, I would thinke, that ſeeing the Fixing of *Mercury* (by the Fires aſſiſtance) ſo as to make it malleable [which perſwads me of what *Paracelſus* wrote, *Metallum omne eſt Mercurius coagulatus*,] according to the Maxime, *Ars Naturam imitatur*; and that not without much paine and labour; I ſay that the conſideration of this ſhould make Philoſophers, at leaſt, ſuſpect the Præ-

exiſtence

exiſtence of the *Alcali*, in all Bodies (eſpecially *Vegetable*) out of which it is ſo eaſily (as by ſimple Incineration, Solution in Water, and Coagulation, upon Evaporation of the Water) extracted; as out of moſt, if not all *Vegetables*; whoſe Plaſtick Principle it is, as will afterward appear.

Who ſo denyeth the *Alcalies præexiſtence*, may alſe confidently deny, 1. the *Gold* its præexiſtence, in the *Markaſite*, or Lump of Ore, found in the Bowels of the Earth. 2. The præexiſtence of that in *Steel*, which maketh it more fit to be a *Razor*, or a *Spring* to a *Watch*, then *Iron* is. 3. The præexiſtence of an *inflamable Reſine* in *Firre*, *&c* (which ſweateth not out of all thoſe Trees, without the aſſiſtance of Fire) more than in *Corke*, which flameth much leſs. 4. That *Oyl* was not præexiſtent in *Mace*, or *Almonds*, *&c* before their Contuſion (without Fire) and Expreſſion. 5. The præexiſtence of *Water*, in a *Lump of Earth*, and *Water*, indurat by the *Froſt*, ſeeing the particles of Water, whilſt indurat, had a configuration (as to our Senſes) alſe different from that which it had before, or after its liquefaction by the *Fire*, as the forementioned *Oyles* had, whilſt in their Concrets, and when expreſſed out of them. For, as an *Almond* will not take flame, whilſt its *Oyl* retaineth the naturall configuration of its parts, ſo the indurat Water, if it could be retained in that configuration, would never extinguiſh Fire. Likewiſe, the *Alcali* of *Tartar*, whilſt

associat with its own *Acid* and *Sulphur*, could not dissolve by *Deliquation*, nor boyle up with another *Acid*, and if it were put into its first configuration again, it would not dissolve by *deliquation*, as is most probable, from its loseing that faculty of *deliquation*, when associat with the *Acid* of *Vitriol*, in *Tartar Vitriolat*, which will neither dissolve by *deliquation*, nor boyle up with an *Acid*. 6. That the *Visible Species* were not præexistent before the making of an *Eye*, or a *Looking Glass*, which are alse *necessary Agents*, as is the *Fire*.

But I hope the Honorable *Ro. Boyle* hath done much for makeing the *Alcalies præexistence* probable, by writing thus, in his *Noctiluca*. *pag.* 99. *... We may both observe, and thankfully acknowledge, the Wisdom and bounty of the great Author of Nature, who for our encouragement to study, even the meanest Works, has been pleased, in a body, that is commonly thought one of the despicablest of the Universe, to Lodge so glorious and excellent a thing, as a self-shining Substance.* And, *pag.* 105. *Humane Urine yeelds but a smal proportion of Luciferous matter.* And, *pag.* 107. *He doubteth whether the matter, wherein the shineing faculty resides, do not consist of the Volatil and Spirituous parts, of our Animal Liquor, but of its (not absolutely, but) more fixt Salt, and ponderous fœted Oyl, associat in a peculiar manner and proportion.* To which I will add another doubt,

viz.

viz. Whether or not such a self-shineing substance would be got out of Humane Urine, more copiously, if the person or persons, were, for a long time, alimented with Whiteings, whose Fish, and especially their Heads, is most shineing in the dark.

Seeing the *præexistence* of a *self-shineing substance* is conceded in some (and but very few) Bodies, out of which it cannot be extracted, without much labour, is it not most probable, that the *Alcali præexisteth* in all Bodies (at least in those) out of which it is ordinarly and easily extracted? Seeing it is more usefull, and the Anima Salis, as was proved in the Introduction.

But if the active *Alcali* (as also the *Volatile Salt*, *Sulphur*, and *Acid Spirit*,) do not præexist the action of Fire, what is it which performeth the actions, which I alledge it, and them to do? For, there must be some Principles in *Vegetables*, subservient to the *Vegetative Life*, as in *Animals* the *Ferments*, *Blood*, *Spirits*, *Lymphe*, *&c.* are unto the *Animal Life*. I would gladely know what absurdity can be inferr'd from the affirming of their *præexistence*, as the *Omnipotent Creator* his inferior *Agents*, of his own makeing (as hath been proved) in all Concrets (especially *Vegetable*) in the *Sublunary World*, answering his other servants, and their influences, in the *Coelestial*, *viz.* the *Sun*, *Moon*, and other *Stars*. Moreover are not the *Angels* GODS *ministring Spirits*,

Spirits, ſent forth, to miniſter for them who ſhall be Heirs of Salvation. Hebrews 1. 14. And hath not GOD planted in the immateriall *Soul* of *Man*, the *Underſtanding* to enlighten the *Will*, which commandeth the Affections, and the other powers of *Senſe* and *Motion*, as inferior ſervants. Alſo, *Rom.* 12. 4. *We have many members in one body, and all members have not the ſame uſe.* Therefore, whoſoever denyeth the præexiſtence of the forementioned Principles, in all Bodies, immediatly after the Creation was finiſhed, doth plead for a parity or homogenity of all the conſtituent *Atoms* in Concrets.

I am very apprehenſive, that the denying of the forementioned active *Principles*, their præexiſtence in Concrets, being very derogatory from the Honour and Dignity, due to the *Omnipotent Creator*, he will be therefore diſſatisfied with *Philoſophers*, alſe well as with *Divines*, if they ſhould deny *the præexiſtence of Sin in the Heart or Soul, before it be acted by the members of the Bodie.*

Moreover, ſeeing we may daylie perceive a *Luſus Naturæ*, in the formation of the Individuals of all the Kinds, of both Animals and Vegetables, conſiſting in the different ſituation of their Organs, *&c.* it is very probable, that there muſt neceſſarly be a conſiderable difference betwixt the Individuals of different Species's, as to their conſtituent Parts or Principles.

In

In the ſame *pag.* 150. He concedeth, (as do all *Chymiſts*) *Acid ſalts* (as *Tartar*, and the *Eſſentiall ſalts*) of *Vegetables*, *to exiſt really in many Plants*. Where 1. he ſhould have inſtanced ſome one or other, wherein they do not exiſt; and why? 2. He ought to have deſcribed the *Alcali* and *Acid ſalt*, ſo as their difference might be rationally know'n; which we ſhall, a little hereafter, endeavour to do. But thoſe his Conceſſions, import no more, than it would do to conced *Cream*, and deny *Butter* to be in *Milk*.

His 2. Argument is, *Did Alcalies praeexiſt in Plants, probably Animals, whoſe ſole food they are, would alſo abound therewith*; the contrary whereof he proveth ſufficiently (tho with a *non-ſequitur* as to the *Alcali* its *non-entity*) and he thinketh it improbable, that *the Digeſtions, and repeated Circulations, have altered its propertie, and rendred it Volatil: becauſe Alcalies are of a very fixed Nature, and not eaſily volatiliſed, and that the Chile doth not in the leaſt participat, either in Taſte, or any other propertie, with Alcaliſat Salts.*

To this, I oppoſe my 2. *Anſwer* to his firſt *Argument*. 2*ly*. *pag.* 152, and 153. He affirmeth, *that himſelf in part, and a very worthy perſon in whole, had effected the dividing of Alcalies, into Oyl and Volatil Salt*; and it cannot but ſeem ſtrange, to any *Artiſt*, that he ſhould deny the ſame Faculty to *Nature*, the oldeſt and beſt *Spagyriſt*, ſeeing it is a certain and know'n Maxim,

Natura

Natura incipit, ars dirigit, & imitatur. 3. In the ſame Diſcourſe he proveth the contrary, affirming, that *Herbs taken out of the Omaſus of ruminating Animals, without any further digeſtion or preparation, yeeld a Volatil Salt, when fermented or putrified in the open Air* (which is a very conſiderable, and further Preparation) *without additament.* 4. We are of opinion, that *Nature* can alſe accurately and ſpeedily *Volatilize* an *Alcali*, as convert *Fiſh*, *Bread*, *Wine*, *&c* into *Fleſh*, or into a *Confirmed ſtone* in the *Bladder*, which did not præexiſte in any ſort of *Meat* or *Drink*, ſeeing many men and women have lived 30. or more Years together, and (for the moſt part) upon the ſame *Meats* and *Drinkes*, yet one of them onely became affected with the *Stone*, becauſe of a præexiſting Calor Lapidificus in the one, and not in the other perſon. Which is no Argument againſt the *Alcalies præexiſtence*: for ſuch a *Calculus* is a compounded Concret, and altogether *præter naturam*; whereas the *Alcali*, is a Natural conſtituent Principle. Moreover, is not the aliment of a *Cherie* or *Plumb*, converted into the aliment of a *Peare* or *Aple*, *& vice verſa*, by *Graſting*? The *Surculus Pomi in Rhamno, aut Mezereo, aequivim purgativam*; as our Learned Countrie-man *Dr. Sylveſter Rattray*, affirmeth in his *Aditus novus, ad occultas Sympathia & Antipathiæ cauſas inveniendas*; pag. 53. And *Zuelfer* in *Apend. ad Animadv.* writeth, *Ex hominis Urina, ſive Vinum,*

Vinum, aut Cervisiam, sive Limpidam bibat aquam, and exigua quantitas salis volatilis salsi, levi ope ra prolicitur.

His 3. Argument is, *If the Herbs or Wood are perfectly putrified, little or no Alcali can be extracted from them.* To which I answer, 1. By the same Argument, he may also prove, that there was no *Oyl*, in any combustible *Herb* or *Wood*. 2. This perfect or intire *putrefaction*, is not the most naturall method of analysing *Plants*, by him there mentioned, *viz.* by *fermentation* or *putrefaction*, whereby we may receive *Oyl*, *Acid Spirit*, and *Volatil Salt* copiously. 3. Its probable, that dry *Harts-horne* will afford more *Volatil Salt*, than that which is *fermented*. 4. Because by that Method (*viz.* of *putrefaction*) *Alcalies* can not be got, it doth not follow, that therefore they do not præexist in the *Vegetables*, more than the burning of a *Vegetable* into *not inflamable Ashes*, doth prove, that there was no *Oyl* in the *Vegetable*: for, as by the *Fire* the *Oyl* is consumed into *flame* and *smoke*, so by *fermentation*, the *Alcali* is diffused through the whole Mass, when (as *Willis* worded it) *fluorem adipiscitur*, and is perceptible to the *Taste*, onely as the *Oyl* was in the *flame*, and is in the *Coals* of the *Vegetable*, unto the *Eye*. 5. I do believe, that out of *perfectly putrified Vegetables* or *Woods*, nothing shall be got, by any Method, whereby the most accurat and expert *Artist* may dignosce, from what it was extracted (yet I could

engage, to discover well calcined *Salt of Tartar* amongst other *Alcalies*.) because this degree of *Putrefaction*, is the next doore to *Annihilation*, (or a makeing of the salt to lose its savour) or such a destruction of the Concret, as maketh of it, *alienens*, which *Vulcans* vitrifieing violence cannot alwise doe; as is evident in *Antimony*; whose *Glass* still retaineth its Vomitive and Purgative faculties. 6. Seeing he acknowledgeth, that, *sometime, a little Alcali can be extracted, from Herb or Wood, perfectly or intirely Putrified*, the reason he gives for it, cannot but seem strange; *viz. The active salt, by whose combination the Alcali is produced, being either expired or evaporated*; which (according to his opinion) is a sufficient reason why no *Alcali* can be so got, wherefore he should have forborne to conced. *that sometime a little may be got, without the active salt, which hath expired.* For, 1. He prescribed *fermentation* (which differeth but gradually from this his *Putrefaction*) as a cheif mean, by which to get the *Volatil active Salt*, (which in this Method, forsaketh its native habitation) tho in his 22 *Note*, and first *Paper*, he acknowledgeth, that *some Herbs, &c yeeld it without previous fermentation.* 2. He should have explained, how the *active Volatil salt* produceth the *Alcali*; *viz.* whether in *fermentation*, or *Cremation*. It cannot be in *fermentation*, because he hath affirmed the highest degree of it, to destroy or obstruct the getting of it. Neither can it be in

Cremation,

Cremation, becauſe the Fire doth fugat all thoſe *active ſalts*; excepting that which is ſeparable from *Alcalies*, when divided into *Oyl* and *Volatil ſalt*, (which he formerly affirmed practicable) which laſt, muſt be a ſtrange *Proteus*, and wonderfull Operator. For, 1. It Præexiſteth in the Concret, without the *Alcali*. 2. It combineing with the *Sulphur*, produceth the *Alcali*, *Phœnix* like, out of its own Aſhes. 3. By facil and natural Methods of procedure, it is reproduced out of the *Alcali*.

Pag. 152. He proveth, *Alcali ſalts, to reſult from the combination of the Acid, and not Volatil ſalt, and Sulphureous Principle.* 1. *By Tartar, ſenſibly Acid, from which a Volatil ſalt can not be ſeparated, by any commonly known Method, which becometh by bare calcination, a ſtrong and perfect* Alcali. Yet *pag.* 154. he writeth, A *Volatil ſalt, may be by divers Methods ſeparated from Tartar.* And (as hath been ſaid) he affirmeth, *That a Volatil Salt and Sulphur can be got, by divideing any* Alcalies, *and that by facil and natural methods of procedure*; of which there is none more conſiderable; than the *Concoction* of the *Stomack*; to which, in his forecited ſecond Argument, he denyeth that power. 2. *By Nitre, an undoubted* Acid, *which with a ſmal proportion of Mineral* (*viz.* as in the makeing of *Sal Prunellæ*) *or Vegetable* Sulphur (*viz.* in the makeing of *Glauber his* Alcaheſt) *is converted into a genuin fiery* Alcali. To this I anſwer, 1. I thought that all men

did believe, the *Fire* to be the most potent, and infallible separater, or destroyer of the *inflamable Sulphur*, of all Concretes. 2. *Dr. D. C.* (as you shall read hereafter) acknowledgeth, *that the Fire driveth away the acidity, e're the Essentiall salts can become Alcalious.* If those be true, then the *Alcali* cannot be generat of them. 3. *By Nitre, which is made by the affusion of an Acid Spirit upon an Alcali, which may be almost totally distilled into an Acid Spirit, there appearing not the least footsteps of a Volatil Salt, and scarce any of the Alcali, out of which it was chiefly produced.*

It is answered, 1. It is a strange consequence, from an *Acid* and *Alcalies* combineing to make an *Acid*, to infer, that an *Alcali* resulteth from the combination of the *Acid* and *Sulphureous Principle*. 2. If the *Caput Mortuum* of that *artificial Nitre*, were exposed to the Air, it would demonstrat a considerable *Alcali* to remain, as is well known to all Artists. 3. It may be inquired, from whence *the scarce any remaining Alcali* (which is, a little) did proceed? and why it also is not converted into an *Acid spirit*, alse well as the rest? 4. How cometh it to pass, that so little Alcali can be got out of *Sulphur Mineral*, which seemeth to be chiefly made up, of *inflamable Sulphur*, and an *Acid Spirit*?

In the next place (*viz. pag.* 152.) he giveth more potent Arguments for proving, That *the Alcali emerges from the Ruine of the Volatil salt, with*

with the Oleaginous, or Sulphureous Principle.

As, 1. *There ſeems to be a great contrariety betwixt Acids and Alcalies, --- were the ſalt of Alcalies, of a nature approaching to Acids, they would more plainly unite without that violent contention which uſually enſues.*

But, 1. Thoſe words doe not at all prove the Aſſertion, ſeeing there may be a third way of producing the *Alcali*. 2. This *Dr.* did juſt now prove, that *an Acid Spirit was generat by the combination of an Alcali, and an Acid Spirit*; and it is certain, that *Generation* is not the product of *enmity*, but of *amity*, betwixt two of the ſame *Nature*, differing onely in *Sexe*. And, two Brothers, or Comrads will embrace one another, with much more motion, than perſons will do, who are not ſo related; as is demonſtrat by the *Alcool Vini*, which will not diſſolve any *Alcali*, or be commoved at the touching it. Upon this account it is, that *Duelfer* hath adviſed, in diſtilling the *Spir. Salis communis*, to make *Alumen uſtum* the *Intermed* (rather than *Bole*, *&c* commonly uſed) becauſe it containeth nothing which the *Spirit of ſalt* will operat upon, to its own diminution. And tho (*in Append. ad Animadv. pag.* 28.) he proveth *Ex acidis & fallis* (*viz. Alcalijs*) *neutrum quid, & a Parentibus, diverſa ſoboles progeneratur*; it is not to be meant of their combination according to the courſe of *nature*, or *artificially*, in imitation of it, by the *Alc.* and *Acid* of *Nitre*, like

Male

Male and *Female*, when they produce such things as are capable of Propagation; as when the *Spiritus Nitro Sulphureous* in the *Air*, insinuateth it self into the *Alcali* of *Burnt-Land*, *Acetosa* groweth; but when their combination is *Artificial* and *Heteroclite*, they produce a far different *Off-spring*. That is to say, *natural Nitre*, or *Artificial*, (made of the *Alcali* and *Spirit of Nitre*) differ from *Tartar Vitriolat*, as a *Horse* doth from a *Mule*. And I doubt, if this will afford a *Spirit* and *Alcali*, as the other.

2. *Alcalies, and Volatil salts, agree in most properties, excepting their different degrees of Gravitation. --- Mixe together quietly, without noise, heat, ebullition, or impaireing each other vertues, and are easily separable, the same in quantity and quality, they were before mixture.*

It is answered, 1. Persons of no relation or acquaintance, will walk up and down the streets, sit in the Church, *&c.* and never offer to speak or salute; which is also demonstrat, by the *Alcali Vini* and *Sal Tartari*, or any *Alcali*. 2. That which specifically differenceth *Alcalies* from *Volatil Salts*, is *Fixity* and *Volatility*; wherein I am sure, they do not at all agree, as they do in *Salsity*. 3. Their disagreeing in degrees of *Gravitation*, argueth no small disagreement of Natures as in *Lead* and *Butter*. 4. *Their being easily separable, the same in quantity and quality, &c.* do more strongly prove their naturall differing; as the same

ſame Operation doth prove *Gold* to differ from *Mercury*. 5. Yet the moſt expert *Zuelfer*, *in Animadv. in Append. de ſalibus Theriacalibus*, could not ſeparat from *Calx vive*, one grain of a *Volatil Salt*, once added to it, to be fixed by it. Which yet doth not enervat any of the premiſſes: for, 1. *Enmity*, or diſconformity to Law, are the ordinary cauſes of Impriſonment and Fetters, their being made uſe of 2. The *Acid* can be ſeparat, from the *Alcali*, as *Dr. D. C.* hath acknowledged. 6. (which alſo ſhould have been objected againſt the firſt Argument) *Dr. D. C.* in his laſt *Paper, proving the Identity of* Vinous *Spirits, proveth their affinity with* Vegetable *Oyles, by their diſſolving, or uniteing with them eaſily*; which may be onely as to our *ſenſes*, which cannot alwiſe diſcerne the inteſtine motions, of differing bodies when mixed. And *Zuelfer*, *in Animadv. in Extr. Ab. ſinthy. &c. Spiritus Vini ſalia volatilia prompte diſſolvit, &c. ſalia autem fixa cum dephlegmatus eſt, non attingit, nec diſſolvit.* 7. *Animals* and *Vegetables* agree, in *Accretion* and *Life*; and all *Animals* agree in *motion* and *life*, yet ſome are *ſanguine*, and others *without blood*; ſome live onely in the Air, others onely in the Water, and a third ſort eſpecially in the Earth, as *Moles*, *Wormes*, *&c.* and a fourth ſort, called *Amphibious*, live both in the Air and Water; and laſtly the *Salamander* is ſaid to live in the Fire. Moreover, *Animals* differ by their *Soules*, one being *rationall*

and

and going upward, as *Volatil*; and the reſt *irrationall*, and going downward, as *Fixed*. All which I hope, do prove, *Alcalious* and *Volatil ſalts* to differ altogether, in their moſt conſiderable properties; which cannot but enervat the alledged *Identity*.

3. *Tartareous and Eſſential ſalts of Vegetables cannot become Alcalious, untill their Acidity be driv'n away: dureing which operation, the Volatil ſalts and Oly, uniting, become more ponderous than the Acid, which before did gravitat, more than either of them, in their ſeparat ſtate; ſo that ſuch a degree of fire, as will wholly diſſipat the Acid ſpirit, cannot elevat the more ponderous Alcali. Note but that, contrary to what is commonly aſſerted, the moſt fixt Alcali, may be ſublimed to great hight, by an intenſe degree of heat. For I have frequently reduced a Pound thereof, unto 3. or 4. ounces, and recovered a conſiderable proportion, which was caught in well contrived veſſells, ſome yairds above the Crucible, little, if at all altered from what it was, immedialy before it ſuffered this violence. Upon this account, cheifly it is, that ſoot yeelds ſome ſmall quantity of an Alcali, eſpecially, that neareſt the focus.*

To this Argument it is replyed, 1. The firſt aſſertion, is believed by all. 2. The *Dr.* hath not yet proven, that in *Tartar*, or any other *Vegetable Eſſential Salt*, there is a *Volatil Salt*, ſpecifically differing from the *Alcali*. 3. He ſhould have

have told how the *Volatil ſalt*, and *Oyl* doe unite, whilſt the *Eſſential ſalt* is a *calcining*, to drive away its *Acidity*; ſeeing it is more probable, that the *Fire* fugats the *Volatil* Salt, and conſumeth the *Oyl*. And therefore I muſt forbear aſſenting to the *Dr.* untill he make an *Alcali*, out of ſome *Volatil ſalt* and *Sulphur*, exiſting *per ſe* (as *Salt* and *Oyl* of *Ambre*, or any ſuch like) formerly, as he did *Nitre*, by affuſing an *Acid ſpirit* upon an *Alcali*. 4. The *Dr.* would have done well, in giving ſome Reaſons, why a *Volatil ſalt* and *Oyl*, being either of them, in their ſeparat ſtate, lighter than an *Acid*, yet, conjoined, become more ponderous than the *Acid*. Seeing *Zuelfer* hath well obſerved, *in Animadv. in Append. de ſalibus Theriacalibus*; concerning *Volatil ſalts fixed by an Acid*, that *they remaine the ſame in weight*, *nec quicquam in pondere*, *ex additione illa ſpiritus ſalis accrevit*. 5. How cometh it to paſs, that ſuch a degree of *Fire*, as will wholly diſſipat the *Acid ſpirit*, doth not alſo diſſipat the *Volatil ſalt*? which all men find more capable of being diſſipat, than the *Acid* is. 6. As for his *ſublimeing the moſt fixt Alcali*, *to a great hight*, *and reduceing a pound of it*, *to* 3 *or* 4 *ounces*, *and recovering a conſiderable proportion &c.* Thereby he onely proveth, that ſome of that which he called a moſt *fixed Alcali*, by the violence of *Fire*, was forced to a great hight, 3 or 4 ounces of the moſt fixed, ſtill remaining in the *Crucible*; and *that*

which ascended, was little, if at all (as he acknowledgeth, and I may affirme, not at all) *altered, from what it was, immediatly before it suffered this violence*, and consequently, it was not at all *volatilised*: for a really *Volatil salt*, will ascend without violence, yea *sponte*, and without any heat; as is evident in the *Volatil Salt* of *Harts-horne*, which can scarce be retained by any vessell, not Hermetically sealed. 7. Untill he sublime (and that with the heat of a *Sand-furnace*) *Sal Tartari Fusum*, without Addition, I must not beleeve that there is any *Volatility* in any *Alcali*, more than is in that, which he acknowledgeth *can be gott out of Soot, nearest the focus*; neither that any *Alcali* can be by him divided into *Volatil salt* and *Oyl*, for that *Alcali* in the *Soot*, hath onely been made to ascend in companie with the other more *Volatil* Parts, as do the *Salts* with the *Mercurie*, in *Corrosive sublimat*.

Pag. 154. His 2. Argument against the *Acid salts having any interest in the production of the Alcali*; is, *Though that Nitre in distillation, yeelds an Acid spirit, yet it abounds also in Volatil Salt, as I could demonstrat from the manner of its generation, and from irrefragable experiments.* To which it is answered, 1. He formerly affirmed (*pag.* 152.) that *artificial Nitre, may be almost totally distilled, into an Acid Spirit*; which therefore can not abound with *Volatil salt*. 2. Seeing, *Nemo unquam vidit Naturam operantem*, he could

TABULA SALIUM

D. ZUELFERI Doctrinæ, *ut plurimum* consentanea.

Authore MATT. MACKAILE Apoth. & Chir. *Alias* Chir. Med.

[Pag 43.]

SALIA Sunt

- **VOLATILIA,**
  - Pure Salsa, quæ ex Animalibus ut plurimum depromuntur, suntque urinosa.
  - Acido-Salsa
    - Naturalia.
      - Sal Armoniacum naturale &c.
    - Arte facta
      - Spiritus Cochleariæ; & similia.
      - Salis Arm. Acidus vel Salsus. Artif. spir. qui est
        - (Prout cum variis Concretis destillatur) Se mutuo destruentes App. ad Animad. Pag 53.
      - Et cum Sali volatili salso, instillatur Spiritus acidus corrosivus aliquis, quousque nulla amplius effervescentia percipiatur.
      - Hæc contra dictatum nescia ad extremas corporis partes pertingere, ac omnium digestionum excrementa crassa abstergere & abradere valent. Animadv. Reg. 277. Append. 73.
- **FIXA,**
  - Pure Salsa viz
    - Omnia Alcalia prægressa calcinatione; & incineratione parata; è quibus Spiritus Acidi & Corrosivi, distillatione nequaquam elici possunt.
  - Acido-Salsa
    - Naturalia
      - Sal commune
      - Gemma
      - Omnia salia terræ & Maris
      - Nitrum
      - Quibus addi possunt
        - Succus
          - Limonum
          - Aurant.
          - Granat.
          - Acetum,
          - Tamarandi, &c
          - Qui Succi simpliciter destillati, Aciditatem nullam per Alembicum transmittunt *Anim* P. 292. *col.* 2.
          - Succus Citri, seu Limonii (naturâ acidus) ... in abstractione humiditatis suæ ... infringitur & dulcescit. Pharmacop. Regiæ *Pag* 3. *Col.* 1.
    - Arte facta
      - Tartarus Vitriolatus.
      - Omnia Salia fixa eodem modo Vitriolata.
      - Salia fixa propriis Spiritibus essentificata.
- **ILLEGITTIMA.**
  - Essentialia Vegetabilium, seu Tartarus. Item Saccharum.
  - Metallorum Vitriola, quæ sunt ipsa soluta cum tota substantia.
    - Sal Chalybis.
    - Sacch. Saturni.
    - Sal Vitrioli.
    - Cum quibus annumerari possunt
      - Mercurius
        - Sublimat corrosivus
        - Præcipitatus
          - Albus,
          - Ruber.
      - Item.
        - Turbith. miner.
        - Causticum Lunare
        - Cinnabar
          - Naturalis
          - Arrtificialis
  - Item, Corallorum, Perlarum, & Similium, salia à spiritibus corrosivis soluta Append. Pag. 68.

could best have proved his Assertion, by Observations, made upon the making of *Artificiall Nitre*. 3. He maketh no mention, of the innate *Sulphur* of *Nitre*.

Here I must take liberty, to propose my Opinion concerning the nature of *Acids*, which are *salsa*, and *Volatil* or *fixed*, as *Zuelfer* hath well observed; as will appear from the following *Table of Salts*.

I do therefore thinke, that all *Acids* are produced by the combination of *Salt* (either *fixed* or *Volatil*) and a little *Sulphur*; and especially the *Vegetable* and *Mineral Acids*, which, mostly, are of a *fixed* nature: for 1. *Moss-ground* being set on fire, the *Herb* which naturally groweth most copiously in it, is *Sorrel*, whose *Acidity* is caused by, or consisteth in the *Alcali*, which attracteth some of the *volatil-salino Sulphureous spirit*, diffused through the Air, and a little remaining *Sulphur*, which the fire hath not consumed; of which *Sulphur*, you shall hear more hereafter. 2. Upon the consumption of the *Sulphur*, such bodies lose their *Acidity*, and become *Alcalious*; as is evident in *salt Marin*, *decrepitat*; and *Nitre*, *fluxed* in a Crucible, to which either the powder of *Brimston*, or of *Charcoal* hath been often added, for the consumption or evocation of the native *Sulphur* of the *Nitre* (which discovereth *Dr. D. C.* his mistake *pag.* 152, where he writeth, *Acid Nitre, with a small proportion of Mineral or Vege-*

table Sulphur, *is converted into a genuine fiery Alcali*; to prove that the *Alcali* is so composed) for it is onely by the mediation of their *sulphurs*, that its *Sulphur* is consumed, by being set on *flame* (which the most learned *Willis* hath defined, *Sulphur in motu suo rapidissimo, exiliens è copore*) as *Tallow*, *Oyl*, *Wax*, *&c* are (and cannot be, but) by the assistance of a *Vegetable Sulphur*, as of *Wood*, *Rushes*, *Flax*, *Cotton*, *&c*. 3. *Zuelfer*, *in Animadv. in Spiritus simplices.* --- *Spiritus Nitri acidissimus est, imo magis corrosivus, quam Spiritus Salis, multo etiam majorem copiam spirituum corrosivorum suppeditat Nitrum quam Sal.* The onely reason whereof is, its containing more *Sulphur*, than *Salt* doeth.

Moreover 1. The *Vegetable Acids*, are either, 1. The *Essentiall Salts*, as *Tartar*, *Sugar*, *&c*, resolvable by distillation, into *Oyl*, *Aqueous* and *Acid Spirit*, *Sal fixum*, and *Terra Mortua*, as *Zuelfer* observed, *Append. ad Animadv. pag.* 68. Or, 2. the *Juices* of *Vegetables*, which 1. either *Nature* hath made so, as the *juice* of *Limons*, *&c* Or, 2. *Art* hath produced, as *Viniger &c*; to which may be added, 3, the *Animal Acid*, which is *Artificial*, in fermented *Milke*; the *Natural* being, *Bile*, the *succus pancreaticus*, *&c*. This last sort of *Vegetable Acids*, affordeth, first a *Phlegm*, and then cometh over it self, more *Acid* than before, being deprived of that, which did dilute the Acrimonious particles.

2. The

2. The *Mineral Acids*, are either *Volatil* (as the Naturall *ſal Armoniack*, *&c*) or *fixed*, as *Nitre*, *Sal Marin*, *Sal Gemmæ*, *Vitriol*, *Brimſtone*, *&c*; the firſt three whereof, the heat of Fire, reſolveth into *fumes*, which doe condenſe onely into an *Acid* and *Aqueous Liquor*, and that moſt copiouſly, when their particles are divided from one another, by the help of an *Intermed* (concerning the choiſe of which *Zuelfer* hath adviſed moſt ingenuouſly, in his *Animadv. in Mantiſſ. Hermet. ſub Titulo*, *Spiritus Salis diſtillatio cur difficilis*) which is alſo neceſſary in the diſtilling of *Ol. Olivarum*, *Butyrum*, *Cera*, *&c*, Whereas neither *Vitriol*, nor *Sulphur* (amongſt *Mineral Acids*) nor *Succinum*, *Terebinth*, *&c* doe not need any ſuch helps: for, the *Vitriol* hath one within it ſelf, and the *Succinum*, *Terebinth*, *&c*, contain *ſalinous* and *volatil* particles (whereof the *Ol. Olivarum*, *&c* are almoſt deſtitute) which promove their aſcenſion. Here we may alſo, not impertinently propoſe, to the conſideration of ingenious perſons, 1. That *Sulphureous Bodies*, which (as to ſenſe, and ſtrict experimental examination) are deſtitute of *Salts* (viz. *Tallon*, *Wax*, *Axunge*, *&c*, or, no *Animal Sulphur*, nor ſome *Vegetable*, as, *Ol. Olivarum &c* and *Mineral*, as *Petroleum*) will not take *flame*, without the addition, and aſſiſtance of ſuch as have them; whereas other *Sulphureous Concrets*, as *Succinum*, *Terebinth*, *Camphora*, *&c* which are *Reſinous*, and

ſalinous,

ſalinous, doe diſtill *per ſe*, and eaſily conceive and conſerve *flame*. 2. *Gun-powder* would not inflame, by the flame of another *Concret*, without the *Charcoal duſt*; by whoſe *fixed Sulphur* it is inflamed. I wiſh that ſuch as have daily occaſion, for trying Experiments, would Philoſophize more concerning ſuch things, which could not but contribute much to the advancement of the knowledge of *Natures* and *Arts* Operations. 3. As for *Animal Acids*, they are more and leſs *Volatil*, and either *Natural* (as *Bile*, *&c*) or *Artificial*, as *Sal Armoniack*, the *Acidity* of *fermented Milk*, *&c*, of all which I can ſay little, having operat little upon, or amongſt them, whom I refer to ſuch, as are moſt converſant with them.

Pag. 155. He again endeavoureth to prove, that *Alcaliſate or fixed ſalts, extracted out of the Aſhes of Vegetables, doe not differ from each other*; and *pag.* 156. He calls *Tachenius a pretender to demonſtrat, that there is a real difference between the Alcalies of different Plants.* All which he proveth onely by *the different operations of his own Alcalies, which* he affirmeth to *proceed from the different degrees of the fire, by which their Acidity was fugat.*

For Anſwere, 1. All thoſe his Arguments doe prove or refute little, ſeeing he hath not mentioned different *Alcalies* (extracted out of different *Vegetables*, and to the utmoſt *calcined*) their *Identical* operations or properties. 2. If different *Alcalies*, have different *ſhapes*, its moſt probable, that

that they have different properties also. As for the different *shapes* of *Alcalies*, I have no doubt of them, nor will I, till convinced by *Microscropes*; which I am confident, will rather confirme than confute them; for, if the differences of *Concrets* consisted chiefly in these things, which to our *senses* doe manifestly appear different, then a *Man* doeth not differ so much from an *Ape*, as is ordinarly believed (the force of which Argument will further appear hereafter, from the *Analogie* betwixt the *Alcali* and *Soul*) and *Dr. D. C.* acknowledgeth afterwards, *the differences of Vegetables to reside in their Sulphurs*, whose differing he doth not at all deny. 3. They have different Operations, as will anon appear.

Pag. 157. *Tartar, the less and more gently it is calcined, the more salt it yeeldeth; and on the contrary, a much smaller proportion, if suddenly, and with the highest degree of heat. The first is milde and gentle, its Taste approaching somewhat towards that of Acids, whereas the other hath not the least affinity therewith, and can almost be alse little endured by the Tongue, as a live-coal of active fire.* And *pag.* 158. He farther illustrateth the same, bywriting of *Potashes*, and the *Ashes* whereof the finer sort of *Glasses* are made.

For Answer, 1. Those words doe prove that the *Ashes* of different *Vegetables*, do differ, especially in the degrees of their *Calcination*. 2. He acknowledgeth, that different *Ashes*, are requisite for

for making different ſorts of *Glaſs*; which he would reconcile with his *Identity* of *Alcalies*; or give Reaſons, why the fineſt *Glaſs* cannot be made out of the *Aſhes* of the *Sea-ware*; which will never be, untill *they can be reduced unto a pure, ſingle, and perfectly homogeneous Nature* (as he can doe *Vinous Spirits*, *pag.* 173. and 174.) which *Vulcans* vitrifying violence may do, as ſoon as his milder, in *digeſtion*, doth to *Oyles* and *Vinous Spirits*.

Pag. 169. *Nov.* 23. 1674. He laboureth to prove, *the Identity of all Volatil ſalts, and Vinous ſpirits*; whom he acknowledgeth, *ſenſibly different from one another, and endued with very different properties, chiefly medicinal*: becauſe *they may, by ſlight Artifices, be reduced to ſuch a ſimplicity and Identity, as that neither the moſt acute and faithful ſenſes, nor the moſt rational and nice experiments, can find or make, without additaments, the leaſt diſagreement, or diſcrimination.* All which amount to no more, than 1. That *Brandie* and *Aqua-Vitæ*, in two different veſſells, by the ſlight artifice of Inflammation, both theſe different ſpirits, are reducible to the ſimplicity and *Identity* of *Flame*, which cannot be diſtinguiſhed. Or, 2. *Spaniſh* and *French Wines*, by the ſlight artifice of two Drunkards, may be reduced into the ſimplicity and *Identity* of *Urine*, which neither the moſt acute ſenſes of the moſt expert *Wroſcopus*, can diſtinguiſh into two different *Urinals*, nor the moſt nice Experiments can diſcriminat.

Pag. 170.

Pag. 170. *Salts, whoſe particular, ſenſible, and medicinal properties, whereby they are diſcriminat, If I ſhould particularly enumerat, it would loſe to me much time and Paper, and require patience in the Reader.* Yet *pag.* 171. He tells all in one Word, from *Helmonts* Obſervation, *That variety of Sulphurs, did diſcriminat the ſpecies of mixt bodies*, which he applyeth to *Volatil ſalts*, eſpecially, affirming that *they are onely diſcriminat by the preſence of the reſpective Oyls, of the bodies out of which they were extracted, whereof being deprived, they reſolve into their elementary ſimplicity, and agree in one common eſſence, whether they be fixed or volatil*; which when this *Dr.* wrote, he had forgot, that *pag.* 153. he affirmed, *Alcalies may be divided into Oyl and Volatil ſalt.* So it is evident, from his own Conceſſion, that untill the *Alcalies* be reduced into *Volatil ſalt* and *Oyl*, they are not *Identicall*, nor agreeing in one common *Eſſence*, the contrary whereof he endeavoureth to prove. Whereas the Learned *Zuelfer, in Animadv. in ſalia*, did onely modeſtly doubt of the buſineſs, thus, *Si quæ in ſalibus hiſcè fixis diverſitas eſt.*

But, ſhould a *diſcriminating propertie* be attributed to *Sulphur*? which is ſubject to ſo many changes, which demonſtrat its frailty, as 1. By *fermentation* it is changeable from an *Oyly* unto an *Aqueous* conſiſtence, as hath been ſaid. 2. When its more ſubtile parts (whilſt an *Oyl*) are evaporat, there remaineth onely a craſs and vappide ſub-

ſtance. 3. According to this *Drs.* Aſſertion, its capable (whilſt an *Aqueous ſpirit*) of being, by long *digeſtion*, ſo *unſpecificated*, that it can not be known from what Species it proceeded. 4. By *Inflammation*, it is capable of being converted into *Air*, or *annihilated*. I ſay, ſhould a *diſcriminating propertie* be aſcribed to ſo frail a body as *Sulphur*, and denyed to the moſt durable and active *Alcali*? which 1. Is not capable of *evaporation*, by expoſing it to the *Air*, but rather of (1.) redintegrating the *Concret*, out of which it came, ſeeing a *Vegetable* can be reſuſcitat out of its own *Aſhes*. (2.) Or recuperating the native properties of the *Concret*; as is moſt evident in *Antimony Diaphoretick*, which recovereth the *Purgative* and *Vomitive* faculties, when long, and not cloſly, kept. (3.) Or being meliorat, by being converted into an *Alcaheſt*, able to diſſolve all *Concrets*, and to extract their *Tinctures*. 2. Which *Vulcans* utmoſt violence can onely convert into *Glaſs*, a moſt durable Body, uncapable of reſolution into heterogeneous parts, by *Diſtillation* or *Fermentation*. Hence it may appear, that *Volatility* (as ſuch) hath no Title to Præeminence above *Fixity*; as a *Swallow* is not better than a *Man*; nor *Mercury* than *Gold*.

Moreover, *volatil ſalts*, their differing in *volatility*, when freed alſe much as can be from their reſpective *Oyls*, doeth demonſtrat a ſpeciall difference, as to their *ſalsne* nature: for the more *volatil*,

til, muſt, infallibly, be more operative. And, that ſuch *ſalts* doe conſiderably differ in *volatility*, none, who hath diſtilled *Cornu Cervi*, and *Succinum*, will call in queſtion. Laſtly, it may ſeem ſtrange, it amongſt thoſe many ſenſible diſcriminating properties, wherewith *ſalts* are endued, *figure* be not one; ſeeing it is the *figure* whereby we ordinarily know a *Woman* from a *Man*, and a *Man* from an Ape, a *Horſe* from an *Ox*, *&c.*

Pag. 172. He gives you *a more certain, and facile method, for reducing them into one common nature and denomination*; viz. *by pouring upon the volatil ſalt (ſtill in ſome meaſure ſpecificated by the Oyl) you would purify, a convenient quantity of well rectifyed ſpirit of common ſalt, When the ſalt is ſatiated (which is known by the ceſſation of the ebullition) then with a gentle equal heat, abſtract the phlegme, with ſome ſmall quantity of volatil ſalt, which not being cloſly united is upon the firſt acceſſion of heat preſently diſmiſſed. Sublime the remaining dry ſubſtance, which will become good* Armoniack *ſalt. This being pulveriſed, and mixed with equal parts of a pure and well calcined* Alcaliſate *ſalt -- the* Alcaliſate *ſalt combining more cloſly with the* Acid *than the Volatil* (for which he ſhould have given ſome Reaſon, ſeeing he did formerly prove, that *the Alcali was generat, by the combination of the* Volatil *ſalt and Sulphur*; and hath not told what became of the *diſcriminating ſulphur*, which was with the *Volatil ſalt*) *this latter will be elevated by a*

ſmal degree of heat, and appears either immediatly, or upon Rectification, in the forme of a dry ſubtile fugitive ſalt, perfectly free from the contagion of Oyles, or Sulphurs. And by this common method of procedure, all Volatil ſalts, although the Tribus and Concrets that afforded them, were exceeding different and diſtant, and they alſo diſagreeing in ſenſible, and (as they are commonly ſtilled) occult qualities, are brought into a perfect agreement, in ſome few common properties. The ſume and import of thoſe words in generall, is onely this, that by ſeveral *Tortures*, a conſiderable quantity of a *Volatil ſalt* may be converted into *aliud Ens*, of a *Hermophroditical* nature, (*viz. a Salt Armoniack*) partly *fixed*, and partly *Volatil*, out of which, at laſt, ſome of the purely *Volatil* (which hath not been ſufficiently *fixed* by the *Acid*) may be extracted, and ſet at libertie, in its native forme: for, *Zuelfer* hath well obſerved, *in Animadv. in ſalia Theriacalia, Omnia Acida, naturam ſalium Volatilium immutant, hinc adeo fit, ut eadem poſtea diverſas non nihil edant Operationes.* Therefore thus to uſe them, is to deſtroy, or at leſt diverſify their genuine properties, and to make much of them, of little or no uſe in Medicine, unleſs it be true, which the ſame Author affirmeth, of ſuch a Mixture --- *Hæc contrarietatem neſcia, ad extremas corporis partes pertingere, ac omnium digeſtionum excrementa craſſa abſtergere & abradere valent.*

But ſeeing great care ought to be had, in preparing

paring of *Medicins*, to preſerve the native properties, of either *Concrets*, or their *conſtituent parts*, I think it were better, onely quickly to waſh the *Volatil ſalt*, with a little of the *Alcool Vini*; which will immediatly abſorbe the *Oyly* particles (which prohibited the *ſalts* diſſolution amongſt *aqueous* ſubſtances) without prejudice to the *ſalt*, wherewith it will not *coagulat* (for, *Zuelfer* hath obſerved, *in Animadv. in Extr Abſinthij, &c* that onely *Vini ſpiritus, aliquatenus Alcooliſatus, ſalia ſuccini, &c diſſolvit*) and then *ſublime* it in a convenient *Glaſs*, in which you ſhall find it pure, from all *Oyls* and *Alcalious* fixednes, with its native *ſhapes*, and properties (in both which it could not be but altered by its aſſociation with an *Alcalious Acid*) and primitive quantity.

Laſtly, *Although the Tribes and Concrets that afforded them, were exceedingly different, and diſtant &c, they are brought unto a perfect agreement in ſome few common properties*; Theſe words do prove the *Identity* of *Volatil ſalts* no more, than the equall rotundity, bigneſs, *&c*, of *Gold, Silver, Lead, &c* caſt into one Mould, do prove their *Identity*: eſpecially ſeeing *Volatil ſalts*, do gradually differ in *Volatility*, as was ſaid. But the Divine Philoſopher *Solomon*, hath ſolved this Ridle, *Eccleſ.* 3. Where, tho (*v.* 19. and 20.) he affirmeth and proveth, ſuch an *Identity* betwixt Man and a Beaſt; yet (*v.* 21.) he demonſtrateth the cheif diverſifying Property --- *The Spirit of*

Man

Man goeth upward, and the Spirit of the Beast goeth downward.

Pag. 172. *Volatil salts are more naturally and speedily unspecificated by the Air, which is impregnated with a* Volatil *salt, partly sublimed by subterraneous, and extracted by Cœlestiall fires, partly expired by Animals, dureing their Life, and both from them and Vegetables, upon the dissolution, or dissociation of their constituent parts in Arefactions and Fermentations. These salts being received into the vast fluid Expanse, are immediatly devested of their discriminating properties --- Which salt may be obtained by sundry Methods out of severall substances, in its pure simplicity; but being once dissolved in Rain and Deus, and thereby insinuated into the Earth --- and conveyed into* Vegetables, *they are soon specificated, and of simple (at least comparatively) become compounded substances, yet easily again reducible by Nature or Art, into their primitive simplicity --- Which I could confirme by an intire series of Experiments, not being the dreams of a delirous Chymist.*

It is answered, 1. As *Dr. French* in his *Yorke Shire Spaw* pag. 108. affirmed, that *the Sea was not created salt, but gradually impregnat by the Ashes of the burning Bitumen in subterraneal fires* (to which I answered, in my *Appendix*, to *Fons Moffetensis*) so *Dr. D. C.* doth not beleeve, that this *Volatil salt*, or rather *Salino-Sulphureous Spirit*, was implanted into the *Air*, at its first Crea-

tion

tion, for influencing all the Changes, that ſhould be upon and in the *Earth*, *Water*, and *Atmoſphere*, but that the Air did gradually receive them, thoſe ſeverall wayes, mentioned by himſelf. 2. He would ſhow, 1. How to extract this *ſalt*, out of ſeverall ſubſtances, *in its pure ſimplicity*; ſeeing he acknowledgeth, that *when it is once conveyed into Vegetables, it becomes ſpecificated, and loſeth its ſimplicity*. 2. Let us know, if that *primitive ſimplicity, to which they are, again reducible by Art*, be different from the *pure ſimplicity*, whereof he ſpake firſt; or that which Nature can again reduce them unto. 3. He would informe us, of the Medicinall uſe of this *pure primitive, and ſimple ſalt*. But it is too probable, that thoſe and ſuch like expreſſions have given occaſion to the Ingenious *Virtuoſo Comedian*, (*pag.* 73. and 78.) to write ſo much of the *Bottleing and weighing of Air*. 3. All amounts to no more, than if he had write, A pynt of Wine being diſſolved into the Air (by throwing it out of any veſſell, from a very great highr) is deveſted of its diſcriminating properties; but being once diſſolved in Rain and Deus, and thereby inſinuated into the Earth, and conveyed into the Vine, it is again ſoon ſpecificated; yet eaſily again, by Nature or Art, reducible into its primitive ſimplicity, by diſſolving it into the Air, and all, by the meditation of a *Volatil ſalt*, wherewith the Air was impregnat, ſeverall wayes, after its Creation.

Pag. 173. He undertakes, *to detect the ſame Identity, or uniformity of nature and properties, to reſide in all highly rectified Vinous Spirits*, and that by two Arguments.

1. *Vinous Spirits are onely (or at leaſt chiefly) the more ſubtile fine Oyls of Vegetables, by Fermentation broken into leſſer particles*, whereof no *Alchimiſt* doubteth. But 1. He had writ more Philoſophically and intelligibly, if he had ſaid, *Vinous Spirits* are onely the more ſubtile fine *Oyls* of *Vegetables*, by Fermentation deprived of their unctuous or reſinous texture, (which prohibiteth their mixture with Water) and endoued with an aqeuous, whereby they were eaſily aſſociat to any aqueous bodie. 2. Before, he affirmed *Vegetables to be ſpecifically diſcriminated, by their Oyls onely*. Ergo, *Vinous Spirits* muſt be ſo diſcriminated. 3 This, and the next Argument, doe alſe much prove the *Identity* of *Oyls*.

2. *Two or three pound of a perfectly dephlegmed Vinous Spirit, will upon ſimple agitation, diſſolve an ounce of ſome common Vegetable Oyls, which by long digeſtion, may be totally deveſted, of all theſe peculiar properties it enjoyed, whilſt an Oyl, and become perfectly Vinous, never to be ſeparated in any diſtinct forme, or by any known diacriticall ſigne, or artifice, to be diſcriminated from what hath, in all appearance, converted or tranſmuted it, into its own nature.*

Its

Its Answered, 1. It seems to be no good Consequence, from *the possible dissolution onely of some Oyls*, to infer, *the Identity of all Vinous Spirits*, the contrary whereof may be also consequentially inferred, from some *Vegetable Oyls*, their not being dissolvable.

2. I doubt if the *Dr.* can separat any *Oyl* (*Vegetable* or *Mineral*) once dissolved by a well *dephlegmed Vinous Spirit*, tho not long, nor at all, *digested* therewith; and therefore he is mistaken, in the same place, where he attributeth *the smel of any Vinous Spirit, so impregnat, and distilled, to some intire unbroken Oyly parts, caried up by the subtile spirit, when pressed by heat.*

3. It had been worth the while, to have given Reasons, why a *Vegetable Oyl*, can not also easily (if at all) be separat from a *Vinous Spirit*, as common *salt* can be from *Water*, seeing they can be also perfectly mixed, in the same proportion. Or, if by long *Digestion*, they can not (as the other) acquire a perpetuall conjunction; to have given Reasons for that also. Or, if *Volatil salts* once *Coagulat* with *Spirit of Wine*, not fully *Alcoolized*, (which *Zuelfer* observs possible, *in Animadv. in Extr. Absinthii, &c*) can be separated from it. As also, to have given solid Reasons, for what the same Author there affirmeth, *viz. Sp. Vini dephlegmatus, salia fixa non attingit, nec dissolvit, nisi prius essentificata fuerint*; especially, seeing he hath affirmed so confidently, that *any*

Alcali can be divided into Volatil ſalt and Oyl. Something alſo worth the reading might be writ, concerning, 1. *Turpentine*, its being beſt (if not onely) made diſſolvable amongſt *aqueous ſubſtances*, by the mediation of the *Vitellum Ovi*. 2. A Chymical *Oyl*, by *ſugar*. 3. And *Mercuries* being beſt extinguiſhed by *Turpentine*; or made capable of mixture, with *Unctuous* bodies.

4. As for *their becoming totally deveſted, by digeſtion, of all their peculiar properties, &c.* 1. I much doubt of the truth thereof. 2. He ſhould have aſſigned ſome uſe for them. 3. If they can be ſo Metamorphoſed, then this *Dr.* hath taught the World, how to deveſt *Cinnamon Water, &c.* of its Cordiall and Medicinall properties, and make it no more uſefull, than common *Aqua-Vitæ*. 4. It is too probable, that ſuch Writings, have given occaſion to the *Virtuoſo Comedian, pag.* 30. to make *Sir Nich.* ſay, *I ſeldom bring any thing to uſe, 'tis not my way. Knowledge is my ultimat end.* And *pag.* 47. *Longvil. To know the Nature of an Ant, it concerns a Virtuoſo mightily, ſo it be knowledge, 'tis no matter of what.* And *pag.* 30. *Sir Formal. To ſtudie for uſe is baſe and Mercenary, below the ſerene and quiet Temper, of a ſedate Philoſopher.*

Pag. 176. He tells of a *pleaſant ſight of a Forreſt in perſpective, in a Glaſs head, ſublimed out of a tall Glaſs bodie, from equal parts of Sal Armoniack, and Pot-Aſhes, which had a very ſtrong Sulphureous ſmel.*

Hence

Hence I would infer, that seeing *Ars Naturam imitatur*, and this *Forrest* was not produced, without a *praexistent Alcali*, neither doeth *Nature* produce *Vegetables* (especially) without a *praexistent Alcali*. Neither is this any Argument to prove, that an *Alcali* can be *volatilized*: for this *Dr.* did formerly acknowledge, that *out of Soot nearest the Focus, an Alcali can be extracted*; being drawn thither, only by the other predominant *Saline* Volatil *substances*; as it happened in the foresaid Operation.

He further addeth, *This forrest represented Firrs, Pines, and another sort of Tree, which I can not easily describe, not having seen it growing wilde, or in Gardens, or in any* Herbal *exactly represented.*

This sort of *Tree* must certainly have been *extraordinary, he having never seen it growing, or exactly described in* Herbals; especially seeing he giveth it no Name, nor tells how he came by the knowledge of it.

Pag. 177. He acknowledgeth, *Volatil salts do constantly shoot into variously and beautifully shaped Christalls, which he could never observe regular or reducible unto a certain number of figures* (yet he seems to say the contrary of *Alcalies*, in his preceeding words) *and that in the forementioned operation, the figures were very different from any that ever appeared before, or since, upon distillation of the same, and other such like ingredients.*

In reference to those things, I shall onely say,

1. That the *variety of Shapes*, doth ordinarly argue the *variety of Natures*, amongst all the *Species* (and sometimes the *Individuals*, especially) of *Animals*, *Vegetables*, or *Minerals*. And I know no reason, why it should not be so amongst *Salts*, *Fixed* or *Volatil*, extracted out of different *Concrets*. Did ever any man see an *Idiot* look like a grave *Divine* or *Senator*? 2. I acknowledge a *Lusus Naturæ*, and also of *Art*: for I got once a Cluster of the *Volatil salt* of *Harts-horne*, like so many *Diamonds* sticking together, at the bottom of the Recipient, besides what was curiously (like so many *Harts-hornes* interwoven) attached to the sides of the Recipient. And once, after the first Sublimation of *Mercurius dulcis*, I found at the bottom of the Glass, a most spongious, and white Earthy substance, which I called *Draconis mitigati Plumæ*; tho ordinarly I found that matter, which did not ascend, to be of a brownish colour. The reason whereof *Zuelfer*, hath given, *Medicamentorum præparationes non semper parent usui nostro*. So neither doth their, nor *Natures Phœnomena*, to our *Ætiologie*. For, a Rustick thinketh the *Moon* no broader than a Cheese, whereof some would have others to beleeve it made, writing (as *Longv.* said, in the *Virtuoso Comedian*, *pag.* 49.) *beyond all that Art or Nature ever produced*. I acknowledge learned men have written (and yet may) very differently, and yet very rationally solve the *Phœnomena*, according to their

their different *Principles*; as *Ptolemeus*, *Copernicus*, and *Tichobrachius* have done.

In the laſt place, I cannot but regrate, that this Learned Author, hath not obviat ſeveral Objections, or Doubts, which ingenious perſons can not be free of, having read what he hath writt, *pag.* 170, concerning *the late Conflagration in Scily, in Mar. and Apr.* 1669. (without affirming himſelf to have been there at that time, or ſince) *where, Salts were ſublimed or thruſt forth --- ſome reſembled the vulgar Sea ſalt, others Nitre, ſome were of an Aluminous and Vitriolick Nature, but that which was moſt copious and Univerſall, was Armoniack, which did chiefly, as the factitius ſalt Armoniack, conſiſt of Marin. and Volatil, commonly called Urinous, as many Experiments have informed me, too tedious and numerous, to be here inſert.*

Any *Artiſt* would have rather expected an *Alcali*, or a *ſalt*, reſembling *Sal Gemma*, than *Marin*, to be thruſt out of the Earth; and that in ſuch a *Conflagration*, any thing *Aluminous*, would have loſt much, not only of its *Taſte*, but alſo of its *Tranſparencie*, ſeeing a little *heat*, without the *actuall touch of fire*, will doe the ſame, and ordinary *fire* will convert *Salt Marin*, into an *Alcali*. Moreover, the *Dr.* ſhould have told, whether thoſe Experiments were his own, or others. And I cannot enough admire, that in ſo great a *Conflagration*, there was no *Alcali* produced

duced; and that a *Dr.* who denyeth the *Coexistence* of an *Alcali* and a *Volatil*, should assert such a fivefold variety, to have been at one time produced in, or excerned out of, that one *Crucible*, or *Aludel*, *Ætna*; upon which there was no *Pot*, or *Head*, to receive or detain the *sublimed salt Armoniack*; which could not but need it, being more *Volatil* than the *ordinary*, either *naturall* or *factitious*, seeing it had passed the *firie tryall*, whereby it behooved to be separat from its more *fixed parts*.

I have written this, because the *Earle of Winchilsea* (then his MAIESTIES *Ambassador at Constantinople*) in his Letter sent to his *Majestie* from *Naples*, at that time, only calls that *Eruption* *an Inundation of fire, a flood of fire, Cinders and burning stones. --- The composition of this Fire, Stones and Cinders, are Sulphur, Nitre, Quick-silver, Sal-Armoniack, Lead, Iron, Braß, and all other Metals.* And the *Narrative* of the said *Eruption*, as it is collected out of several *Relations* from *Catania*, *Pag.* 10. *from all these mouths were vomited Rivers of a thick and fiery substance, of stone and Metals melted. --- Its flame like that of Brimstone, and its motion like that of Quick-silver.* And *Pag.* 11. in the later *Relation* from *Catania*, *Which resembled a River of melted and burning Braß.*

Here I cannot forbear the noticing of, *Marcelli Malpighij Epist. 2. ad D. Joelem Langelotum*, whereof the *Publisher of the P. T.* giveth a short account

account, *Vol.* 10. *pag.* 407. *Sep.* 26. 1675, where he endeavoureth to *repreſent the obſcurity of the Acidum and Alcali: becauſe ſome ſubſtances are endued, with certain vertues or powers, not diſcernable by our ſenſes.* But this is no Argument againſt their being admitted, as to ſuch as are diſcernable; elſe from the *occult Qualities*, we may argue againſt the *Manifeſt.*

Pag. 408. *Its doubtfull, whether all thoſe ſubſtances that do tumultuat with an Acid, are Alcalies, or that doe boile up with Alcalies, are Acid. for Acids doe boil up with Acids --- as ſpirit of ſalt or Vitriol, works upon the ſolution of Silver or Copper, made by Aqua fortis, or ſpirit of Nitre.*

This Argument proveth not his Aſſertion, unleſs the *ſpirit* of *Salt*, or *Vitriol*, doe worke upon *Aqua fortis* alone; and if not, then the working is to be imputed to the Action upon the *Silver*, and not upon the *Aqua fortis.*

Pag. 409. *Malpighius* labours to evince, *that there is, at leaſt, a third principle, that hath alſe great a power to act, as theſe two, and thinks it difficult to determine what it ſhould be*, only he offers to call it, *the ſweet and inflamable principle, in Combuſtible bodies.*

All *Chymiſts* doe acknowledge ſuch a *principle*, tho without the addition of *ſweet.* Wherefore this Author ſhould have ſhown, wherein the *bitterneſs* of the *inflamable part* of *Worm-wood*, *&c* doeth exiſt, if it doe not primarily in the *Sulphureous principle*,

principle, of that *Vegetable*, as its diſcriminating propertie, as *Helmont* affirmed before.

I will now adventure, humbly to propoſe my Opinion, concerning the *Chimical Principles*; and eſpecially the three *Active*, viz. *Salt*, *Sulphur*, and *Mercurie* (or *Acid ſpirit*) which were firſt called *Principles*, by ſuch as did look upon them, as homogeneous bodies, indiviſible into heterogeneous parts. But of late ſome, having diſcovered ſome of them to be diviſible, deny unto them that Title, and looke upon them as *principiata*. As the *Honorable Mr. Boyle*, in his *Sceptical Chymiſt* hath informed, *the ſpirit of Boxwood to be reſolvable, into two Liquors, of different operations, as the Acid and Alcali*; and *Dr. D. C.* will have the *Alcali* reſolvable, into *Volatil ſalt*, and a little *Sulphur*. But ſeeing the moſt part of Natural Bodies, eſpecially *Animalls* and *Vegetables*, are ordinarly reſolvable into thoſe ſubſtances (which are rationally proved alſo to be in *Minerals*) I would not deny them the Title of *Principles* (no more than one to be a *Woman*, becauſe ſometime ſhe produceth a *Male* and a *Female* together) tho I beleeve, that what *God* and *Nature* have ſo joined together, no man can totally ſeparat from one another; as is evident in *Vitrio Antimonij*, whoſe *Sulphur* (and *Vomitive* and *Purgative* faculties) *Vulcans* vitrifying violence, can not ſeparat from its *Salt*. And *Sal Tartari fuſum* (which requireth great heat) tingeth

the

the *Alcool Vini*, with its *central Sulphur*.

But here it may be doubted (seeing the *Spirit of Wine* is only the *Oyly part*, by *fermentation* devested of its unctuous consistence, and opacity; and rendred aqueous and Limpid) whether it be the *salt of Tartar*, which reduceth the Spirit to Opacity; or the *Spirit*, which extracteth the *central Sulphur*, and relicts of it selfe, left into the *Salt*; which I refer to these, who are daily busied in trying such like Experiments.

1. Then, I am of Opinion (with several others) that the *Acid spirit* is made of the *fixed salt*, in a little proportion, and the *Volatil* in a greater, dissolved in some of the watery part, or Phlegme, and that *nexu quasi indissolubili*. And that when it hapneth to be divided (as is before said, only of the *Spirit* of *Box-wood*) the little *Alcali*, is in some measure separated from that Concret; as also appeareth from the *salis Armoniaci naturalis*, its *spiritus Acidus*, & *salsus*, mentioned in the *Tabula Salium*.

2. *Salt* and *Sulphur*, especially deserve the Title of *Principles*: because they are ordinarly found in all *Concrets*; and the most part of (if not all) the changes which happen in those, proceed from the various mixture of these. Which *Dr. W. Sympson*, in his *Zymologia Chymica* homologateth; therein affirming, *Fermentation to be nothing else, but an intestine collision betwixt Acidum and Sulphur*: and that *Acids*, *when mixt with Alcalies*,

doe meet with the Sulphur, cloſs bound up with the Acid, and Urinous ſpirit or Salt, in the compages of the Alcali, and ſo cauſe an ebullition; or that *they meet with the Volatil Urinous ſalt, cloſs riveted with the Sulphur and Acid, and ſo cauſe an effervescence.* As the *Publiſher* of the *P. T.* related *Vol.* 10. *Sept.* 26. 1675. *Pag.* 410. and 414.

3. I am ſo far from doubting of the *Alcalies praexiſting*, that I doe beleeve it to be the moſt conſiderable, potent, active, and *plaſtick Principle*, in all *Naturall Bodies*, perceptible by our Senſes; eſpecially in the *ſublunary World*, in which the *Omnipotent Creator*, and *Proto-ſpagyriſt*, hath ſubſtituted, as his *Vice-gerent*, that *Spiritus ſalino-ſulphureus*, for regulating, or aſſiſting all things, and changes, eſpecially upon the ſuperfice of the *Earth*, in the *Water*, and *Air*, in all which the *Alcali* is ever the chief and firſt produced; as will appear from its *Analogies*; which muſt not be too ſtrictly convaſſed; ſeeing *omnis ſimilitudo claudicat.* Yet, tho *Analogies* be not moſt infallible demonſtraters of amiable *Certainties*; they are moſt ſtrong provers of credible *Probabilities.*

1. The *Alcali* in the *Concret*, is like the *Anima in Brute*, of which, the moſt ingenious and learned *Willis*, *Cap.* 2. *eſt corpori coextenſa, ac è particulis ejuſdem materiei, è qua corpus organicum formatur; iis vero ſelectis, ſubtiliſſimis, ac maxime activis conſtans, --- Cujus munia praci-*

pua

pua ſunt. 1. *Corpus, quaſi domicilium ſuum effingere,* 2 *Corpus illud integrè formatum, ad uſus quoſvis, tum ſpeciei, tum individuo neceſſarios, aptum & accommodatum reddere.* Tho it (viz. the *Alcali*) differ from the *Anima Bruti --- cujus exiſtentia, omnino ab actu, ſeu vita ejus dependet; atque hoc reſpectu, flamma vulgari, eique ſoli ſimillima videtur, in quantum ſcilicet utriuſque ſubſtantia, quamprimum ab omni motu ceſſat, illico non eſt, nulloque modo eodem numero redintegrari poteſt.* But this diſcrepancy is fully made up, by its *Analogie*, with the *Soul* of *Man.*

2. The *Alcali* its *Analogie* with the *Soul* of *Man*, appeareth, in thoſe particulars.

1. The *Soul*, immediatly after its Creation, is infuſed (or rather created) into the body, and hath no exiſtence, till it be there.

2. *Dr. D. C.* his firſt Argument againſt the *Alcalies praexiſtence*, is, *its not manifeſting it ſelf to the Taſte*; and the reaſonable *Soul* manifeſteth it ſelf alſe little, in *Infants*, *Idiots*, rude *Pagans*, and *Atheiſts.*

3. To theſe may be added, *Cor (antiquis animæ ſedes) eſt primum vivens, & ultimum moriens*; ſo the *Alcali*, as to exiſtence.

4. As the *Soul* is immateriall, ſo the *Alcali*, is very little, in all *Animals*, *Vegetables*, and *Minerals* alſo; which contain ſo much of the *Principles*, as can, by *diſtillation*, be ſeparated from them, *Nitre*, *Sal Marin*, and *Gemma*, excepted;

which therefore contain leſs of the *inflamable ſulphur*. And, tho it be thought, that *Tartar* aboundeth with *Alcali* (ſo that *Zuelfer Append. ad Animad, pag.* 68 affirmeth, *for the moſt part it is reſolved into fixt ſalt*) yet it would be conſidered, that out of the *Wine*, proceeding from one *Vine*, there can be but little *fixed ſalt* extracted; and far leſs, out of one *ſeed* of a *July-flower*, which is a perfect and naturall *Concret*.

5. After the diſſolution of the body, the *Soul* hath an immortall being, and exiſteth without the body. So the *Alcali* ſubſiſteth after *Vulcans* deſtroying the reſt of the conſtituent parts or Principles, which repreſent the *Animal ſpirits* (*viz. ſal volatile*) *Humidum radicale* (the *Aqueous* part) and *Calidum innatum*, the *Sulphur*, the *Earth* of both, remaining ſo ſtill.

6. As the *Soul* in its ſeparat ſtate delights in the communion and enjoyment of its *firſt Author*; ſo the *Alcali* graſpeth moſt eagerly after the forementioned *Spiritus ſalino ſulphureous*, deſireing its communion, and the redintegration of the *individuum*. As is evident in the *Caput Mortuum* of *Nitre*, *Sal Marine*, *&c.* expoſed to the *Air*, for a while, which doe afford new *ſpirits*, as formerly, when diſtilled.

7. As the *Soul* will again animat the body, ſo a *Vegetable* may be reſuſcitat out of its own *Aſhes* (as ſome great *Artiſts* have affirmed) in which caſe it is like an *atrophi'd Man*, without *Muſcles*, *Fat*, *&c.*

8. As

8. As the *ſoul*, in its ſeparat ſtate, in the full enjoyment of its firſt *Author*, triumpheth over all ſublunary beings, ſo the *Alcali*, when ſaturat, with the *ſpiritus Salino Sulphureus*, and ſo made an *Alcabeſt*, diſſolveth all Naturall bodies, by which it is little or nothing leſed, through their Reaction.

9. As the *ſoul*, in its ſeparation, by a perfect intuitive knowledge, diſcovereth the natures of things, ſo the *Alcali* in the *Alcabeſt*, extracteth the *Tinctures*, of moſt ſolid Concrets, as *Corall*, *&c.*

10. The *Alcali* in its ſeparat ſtate, undergoeth no alteration (when preſerved from Mixture with other bodies) but to its bettering; and ſubſiſteth in its vigor; whereas the *Volatil ſalt* and *Sulphur*, are daily deteriorat by evaporation, and at laſt doe totally evaniſh, unleſs keept in Glaſſes, *Hermetically ſealed.*

11. As the *Woman* (the *weaker veſſel*) was made out of, and for the *Man*; ſo the other weaker *principles*, are made out of, the ſame præexiſting matter with, and for the *Alcali.*

3. Moreover, the *præexiſtence* of the *Alcali*, will appear, from its *Analogie* with the *Seed* of *Vegetables*, or that *ſpermatopetick power*, of the forementioned *univerſal ſalino-ſulphureous ſpirit*, which in the ſublunary part of the *Macrocoſm*, is equivalent to the *Archeus*, whoſe *ſpiritus rector* (as to all naturall or præternaturall actions) it is ſaid

to

to be. For, as the *ſeed*, or *polluties ſeminalis* (mentioned by our learned Countrey man *Dr Silv. Ratray*; *Aditus novi ad occultas Sympath. & Antipath. cauſas inveniendas*, *pag.* 51.) ſpecificateth the Aliment, which it extracteth from the Earth, ſo the *Alcali* ſpecificateth what it attracteth, into *Volatil ſalt*, *Sulphur*, *&c* beſides what it improveth for its own accretion and conſervation. I mentioned a *ſpermato Poetick power*; becauſe, in *Iune* 1680, at *Aberdeen* I ſaw *Wood ſorrel* (ſo called becauſe it is ordinarly found only in Woods) growing in a *draw*, *or Pit well*, the reaſon whereof the *Dr.* there giveth; viz. *Terra virgo in puteorum concavis collocata --- ſi pluvia irrotetur*, *in iſto loco -- his -- & non aliis herbis ingravidabitur*; amongſt which there is no mention of *Wood-ſorrel*, whoſe *ſeed* I apprehend to have been brought thither by Rain.

4. The *Praexiſtence* of the *Alcali* may appear, from its Analogie with *Gold*.

2. As *Vulcans* greateſt violence, cannot prejudge *Gold*; neither can it the *Alcali*, unleſs it *Vitrify* it.

2. I heard, or dream'd, that *Metallizationis finis eſt Aurificatio*; i. e. *Omne Metallum tendit in Auri naturam*; and that the greateſt Pretenders to the *Philoſophers ſtone*, did only intend, thereby, the ſeparation of *purum Aurum*, from that which was impure, and not fully concocted. Nor did any Artiſt ever thinke, that the *fire*, *Aqua Regia*, or

or any other diſſolver of *Gold*, did operate otherwiſe. So *fire*, doeth only ſet the *Alcali* free from the other *principles*; *Earth* excepted, from which *Water* doeth eaſily ſeparat it, that by Evaporation it may be made appear and exiſt by it ſelf,

5. The *præexiſtence* of the *Alcali*, appeareth from its *Analogie* with

1. The *Letters* of the *Alphabet*, which ſerve (almoſt in the ſame number) to make up all *Languages*, and have their various Configurations, viſibly differing from one another.

2. With the *Vouals* and *Verbs*, for, as without the firſt there can be no *Syllabs* or *Words*; and without the laſt, no *ſpeech*; ſo without the *Alcali* no Concret. for all Concrets, from it do take their ſolidity, and durableneſs. Theſe might be further illuſtrat, by aſſigning *Analogies* tor he reſt of the *Principles*, with the other *Letters*, and *partes Orationis*; if it could be done without much *Pedantry*. I ſhall onely add, that the pleaders for the forementioned *Identity*, are like the contrivers of an *Univerſal Language*; which is not like to be perfected ſhortly.

6. The *Præexiſtence* of the *Alcali*, is laſtly proved by the *Analogie* betwixt *ſalt* (in general) and *Sulphur*. For as there is a *Volatil* and *ſubtile Sulphur*, which can be eaſily made flie out of the *Concret*, either in forme of a ſubtile, but limpid, aqueous *ſpirit*, or in forme of a craſſer *Oyl*; or by way of *Flame*; ſo alſo there is a *Fixed*

ed Sulphur, which cannot be ſeparated, either of the former wayes; but affordeth *Pabulum* to (or rather is the reall matter of all viſible) *Fire*; ſeeing it is moſt certain which the Learned *Willis* affirmed, *flamma eſt ignis in motu ſuo rapidiſſimo, exiliens è corpore.* Moreover, ſome of it remaineth with the very *Alcali*, as was formerly told. So there is *Volatil ſalt*, which the *Fire* eaſily fugateth out of all *Concrets*, tho in its progreſs, it can onely be eaſily catched out of ſome (eſpecially *Animals*) and made appear, in a dry forme; as alſo, there is a *Fixed ſalt*, which requireth *Vulcans* great Violence, for deveſting it of its alliance, with the reſt of the *Principles*, and making it capable of appearing alone, to prove that it hath a reall exiſtence, whoſe previouſneſs to *Cremation*, we hope, none will now queſtion. Seeing the *purgative faculty* præexiſteth in many *Concrets*, before the action of *Fire* upon them (as is evident from the exhibition of *Senna*, *Rubarb*, *&c* in powder, internally; and the operation of *Ung. de Artanita* externally applyed) it is moſt probable, that the *Alcali*, *Volatil ſalt* and *Sulphur*, do alſo præexiſt its action. Likewiſe, as *Sulphur* is the *pabulum Ignis*, ſo the *Alcali*, is *attractivum ſpiritus Salino-ſulphurei*; and doeth alſe really *præexiſt* the *action of the fire*, as the *inflamable part* of *Brimſton* doeth; which is moſt evident in *Lime-ſtone*, and the *ſhels* of Fiſhes, when burned, or *calcined*; otherwiſe any *Concret* might be

be made alſe *attractive of the* Air, as they are.

Er I conclude concerning *Alcalies*, I muſt informe you of one, which (proveth *Praexiſtence*, alſe much as all which hath been ſaid, and) I acquired without Cremation, and was the ſtrongeſt which ever I hade: *viz.* The *ſalt* of *Moffet-Well*, which I got onely by *evaporation*, and which I could not keep, in one of my pockets, from becoming moiſt, as I did good *ſal Tartari*, in my other, in the Moneth of *Auguſt*; but was neceſſitat to put it into a Glaſs, and keep it alſe careſully, as my ordinary *Cauſtick*. The reaſon whereof I conceive to be, the penury and ſubtilty of its *Sulphur*, which had been almoſt totally fugat by *evaporation*. For it is only the admiſtion of *Sulphur*, which prohibiteth all *ſalinous bodies*, to attract the *Air*, and diſſolve by *deliquation*; as is evident in *Nitre*, which is conſtantly much more dry, than *ſal Commune*, or *Gemma*; and can not be made *Alcalious*, without the aſſiſtanee of ſome other *ſulphureous bodie* (as was ſaid) whereby its innate *ſulphur* may be ſet on flame, and conſumed; whereas the other two, by bare and eaſie *decrepitation*, are made *Alcalies*; that is, the *fire* conſumeth all the other conſtituents of the *Concret* (except the *Earth*, as was ſaid) and cauſeth a bodie appear, which can not be deteriorat, by the ordinary violence of the *fire*; but ſo powerfully attracteth the *Air* (or ſome *moiſture* therein) that it becometh *moiſt*, and is at laſt diſſolved into a

Liquor. Therefore, *Oculi Cancrorum*, *Corall*, *Perlæ*, *Ovorum teſtæ*, *&c*, muſt not be called *Alcalies*, upon this account, tho they doe *boyl up with Acids*; more than a *ſhe-Aſs* muſt be called a *Mare*; becauſe a *Horſe* will cover her. Moreover, the *Egyptian Nitre*, is acknowledged to be of a *Lixiviat Nature*, and produced without any precedent *Incineration*.

In defence of the *diverſity* of *Alcalies*, I ſhall further add; that ſeeing the moſt wiſe *Creator* of all things, hath ſaid of *Wine*, *Iudges* 9. 13. *That it cheereth God and man*; and *Pſal*: 104. 15. *It maketh glade the heart of a man*; leſt I ſhould ſeem to derogate from the power and wiſdom of God, I can not admit the thoughts which would inſinuat, his placeing the excellency of all Corporeall beings, in one of their conſtituent parts. So that I doe beleeve, that whatſoever preheminence is due to the *Sulphur* (which is the moſt cheering part) of the *Vine*, above all other *Vegetable Sulphurs*, the like is due to its *Alcali*, above all others afforded by *Vegetables*.

I am further confirmed in this Opinion, when I reminde, the *Honorable Mr. Boyle* his Obſervation, in his *Experiment*: *Philoſop. par.* 2. about *pag.* 25. *That the Acid ſpirit of Houſ-hold Bread* (of which the *Pſalmiſt* ſayeth in the ſame verſe; *it ſtrengtheneth mans heart*) *doeth diſſolve Gold*, which very few Liquors will doe.

This may be further illuſtrat and confirmed, by conſidering

conſidering the Analogie betwixt *Man* and the *Vine*. Who knoweth not the frailty of *Man*, whilſt alive, and the loathſomneſs, and uſeleſneſs of his body, when dead. And *Ezek.* 15. The *Vine* tree *is* ſaid to be *unmeet for any worke, or to make a pin, to hang any veſſell thereon, but for fuell to the fire.*

Moreover, from the preceeding *Analogies* betwixt the *Soul* and the *Alcali*, you may conjecture, what ground there is for prefering the *Alcali* of the *Vine* (to all others of that Tribe) which hath ſpecificated inſipid *Rain-water*, and made it deſerve the title of *Nectar*.

For the further making the *Identity* of *Alcalies* improbable; I deſire that it may be conſidered 1. If there were no reall difference, then no *Vegetable* could be conſtantly, reſuſcitat out of its own *Aſhes*, but ſometimes, *Marrubium*, *&c* might be reſuſcitat out of the *Aſhes* of *Abſynth.* 2. If the frail and corruptible body of every individuall *Man*, hath ſuch diſcriminating *Effluvia's*, whereby a *Dog* will know his *Maſter* amongſt 1000; its very probable, that the durable *Alcali*, hath, at leaſt, its ſpecifically diſcriminating Tokens.

I intreat all ingenuous Perſons, not to looke upon me, as one vainly offering to debate againſt the ingenious and New *Philoſophers*: my deſigne being only to defend, the received Opinion concerning the conſtituent parts or *Principles*, of all *Naturall-Bodies*; for diſcovering of which ſome

were famous; but now others go to, with *Corpuſcals* and *Angles*, endeavouring to pull them down; which I can not homologat, untill I be informed of better, not only more conſiſtent with Reaſon, but alſo in ſome meaſure, obvious to our Senſes, by which we are obleidged to be directed, and Iudge, of all Corporeall things, relateing to uſe. But this *New-way* tendeth to reduce all to one *Senſe* of *Touching*; from which I knew one (tho illiterat) very averſe, alledging that there was a *Sixt-Senſe*, alſe conſiderable as any of the reſt, which did reſide in *Generationis Organis*.

When I conſider, that the *Alcali* is copiouſly extracted out of ſome; and ſpareingly out of other *Concrets*, I will concede its *praexiſtence*; untill I can diſcover, why the *fire* doeth not produce it equally alike in all: for, the penurie or abundance of the *Acid*, or *Volatil*, and *Sulphur*, can help nothing here; ſeeing all the Arguments againſt the *Alcalies Praexiſtence*, doe alſe ſtrongly infer, the *Nonentity* of the reſt, before the *firy tryall*, by *diſtillation &c*, which can not produce them, but by *a fortuitous combination of the particles of Matter* (which is Brother-German to *Occulta qualitas*) of which if there were any reality in *Nature*, I am confident, that the different regulation of the *fire*, might ſometime produce a *Volatil*, out of a *Concret*, ordinarly affording onely an *Alcali*, *& contra*; eſpecially, ſeeing *Dr. D. C.* acknowledgeth, *that by the violence of fire*, *an Alcali can be made Volatil*.

Laſtly

Laſtly in defence of the *Alcali*, and other conſtituent parts of *Concrets*, their *præexiſtence*, I ſhall only add, that I thinke they do *præexiſt* the *Action of fire*, in their diſtinct formes (ſo to ſpeak) as *Gold*, *Silver*, *Copper &c* doe, in a *ley'd Medall*. And all the Arguments proving *the producibility of theſe ſubſtances or principles* (or rather things like to them) by *Art*, argue no more againſt their naturall *præexiſtence*; than the *Magicians doing the like*, did redargue the *Almightyes* miraculouſly producing the ſeverall *Plagues* in *Egypt*. Yea, I am confident, that as they could not produce the *Lice*, (*Exod.* 8.) tho they had the *præexiſtent matter* (viz. the *duſt*) ſo no *Artiſt* can produce any of them (and eſpecially the *Alcals*) where they did not *præexiſt*; which I will ſtill beleeve, untill I ſee the *Volatil ſalt* of *Hartshorne* converted into an *Alcali*; or ſome *Alcali* ſeparated from, or rather produced out of it.

Therefore it is, that I doe beleeve, that *Nature* can not contex a *Plant*, out of fair *Water*, without having all the *Elements* of *Salt*, *Sulphur* and *ſpirit* (tho in ſmall quantity) previouſly preſented to Her, to compound it of; more than *ſhe* can doe a *Mans bodie*, without a little thin *ſperme*, *Maſculine* and *Fœminine*, which really contain the *ſeminall Particles* of *Bone*, *ſkin*, *&c*, with a capacity of increaſing themſelves; as the little *Salt*, *Sulphur* and *ſpirit*, in *Water* doe, when *Nature* frameth a *Vegetable* out of it.

Moreover,

Moreover, the *duſt* of the *Earth* (of which *Mans bodie* was made, *Gen. 2. v 7.*) doeth no more appear in *Man*, without *fire*, or exſiccation, than the *Alcali* doeth in other *Concrets*; likewiſe, *Mr Boyle* having obſerved in his *Experiments, about the producibleneſs of Chymicall principles*, Part. 5. and elſe where. --- *That thoſe who have produced a conſiderable quantity of Water out of Mercury, doe acknowledge, that it was far from common Water; and that Earth into which Water may be reduced, probably, is of a very different nature from the Terra damnata of any Concret*; I crave leave to thinke it alſe probable, that any *Alcali*, *Sulphur*, or *ſpirit*, by *Art* producible, will be alſe different from the *Alcali*, *Sulphur*, and *ſpirit*, which *Art* reſolveth *Concrets* into; and I beleeve to *praeexiſt* in them. And tho they ſhould be proved to be *identicall*, all that can be inferred, is only a *Circulation in Nature* (as *Ariſt.* did of his *Elements*) which *Art* can imitat; and all *Philoſophers* doe beleeve.

March 23. 1683. (The firſt three Sheets preceeding, being printed) I got my firſt ſight of *Dav. von. der. Beck*, his moſt learned and ingenious *Experimenta & Meditationes, circa naturalium rerum principia*; wherein (Pag. 5.) he ſets down his Opinion thus, *Cuncta Corpora ex Aqua, tanquam Materiali, & Seminibus, tanquam formali, cauſis, fermentorum auxilio conjunctis, conſtant.*

Concerning

Concerning this Aſſertion (which the Author doth moſt Excellently endeavour to prove) I doe onely moſt humbly propoſe theſe things to be conſidered.

1. (In purſuance of what I wrote before, in the Introduction) it is evident from *Gen.* 1. 1. that we have more reaſon to eſteem *Earth*, the firſt *material Principle* of *Concrets*.

1. Seeing *Water* is reducible into *Earth* (as *Mr. Boyle* acknowledgeth) it can not be lookt upon, as the firſt *Material* Principle. For this learned Author, (Pag. 5.) concedeth, *Principii cauſalis naturam eſſe, ut ex eo res naturales prime proàucantur, atque in idem ultimò reſolvantur*; which (Pag. 20.) he applyeth to *Water* --- *certius conſtat ſolam Aquam Elementalem, in aliud prius reduci non poſſe*; and I beleeve the ſame of *Terra Elementalis*; and that no man can reduce any *Concret*, or any part thereof, unto that primitive, *Principial* (ſo to ſpeak) or *Elemental* ſimplicity of *Earth* or *Water*; which was before the *Spirits* Incubation (*Gen.* 1. 2.) or *moving upon the Waters*.

3. I reſolve to beleeve, that *Earth* and *Water*, are the two firſt *Material* Principles (*jure divino*, as was ſaid) whereof the other three, *Salt*, *Sulphur*, and *Acid ſpirit*, were made, of which all *ſublunary Bodies*, viſible and tractable by us, doe conſiſt. I ſhall only add, that I am hopefull, my Opinion, ſet down in the Introduction and Syſtem, will

will be found consistent enough, with this learned Authors, seeing I doe therein acknowledge such a fourefold Gradation (viz. Pag. 13.) in the Worlds Creation; which comprehendeth, *Water*, *Seeds*, and *Motion*, or *Fermentation* also.

Likewise the same most learned Author *D. vonder-Beck*, *Experimenta circa rerum naturalium principia* (*Pag.* 108.) hath this Argument against the *Alcalies præexistence*. --- *Erit mihi magnus Apollo, qui ex Carbonibus, seu Lignis, nondum omnino in cineres redactis, vel unicum Salis Alcalisati granulum prolicere noverit.* To which I doe most humbly answere. 1. Neither can it be proved that *Man's bodie* is made of *Dust*, till after *Death*; that the moisture be consumed by *fire*, or imbibed by the surrounding dry *Earth*, or by the *Air*, as appeareth in Malefactors. 2. Nor that he hath a *Rational soul*, till the *Years* of *discretion* begin. 3. Before a *Cannon* be fired, who but the Charger and witnesses, can prove that it containeth *inflamable matter*, and a *Ball*, which can kill a Man.

Moreover this Author affirmeth, (*Pag.* 111.) *Fuligo aperto vase calcinata aliquam Alcalisati Salis quantitatem largitur; sed longe majorem, si vase clauso calcinetur --- ut fuga volatilium, ceu materialis causa fixorum Salium impediatur.* --- *Sic enim eò citius colliquantur particulæ volatiles, & figuntur.*

To which words I answere, 1. It is very probable that the native *fixed salt*, hath only *fixed* the *Volatil*

Volatil (as the *Salts* doe *Mercury*.) and so increased its own qantity and weight. 2. (As was said) All the Arguments against the *præexistence*, of the *Alcali*, doe alse strongly militat against the *præexistence* of the *Volatil salt*, which also can not be extracted out of any *Concret*, without the assistance of *fire*. Therefore seeing he ackowledgeth the *præexistence* of the *Volatil salt*, it (at least) must be acknowledged to be a *Principle*.

As for his *distinction* of *materal* and *formal*, *præexistence*, often mentioned, I doe humbly conceive, that what is said *Pag*. 26. *&c*. is a sufficient answer to it. To which I shall onely add, that the *Author* of *Nature* hath said *Gen*. 46. 26 that *Jacobs Children came out of his Loynes*; and therefore we are to beleeve their *præexistence* there, *materially*, tho not *formally*, which is enough; tho I believe the *Alcali formally to præexist*, as Gold doeth in a *Medal*, made of *Gold*, *Silver*, *&c*.

Moreover, *Pag*. 112. and 113. he affirmeth, that *some particles of the Alcali of Tartar will be elevate by a Volatil salt* (*as of Cornu Cervi*) *but that it is not* sal fixum formaliter, *which consisteth in the union of the saline particles of the fixed salt, with the Terrestrial*.

If this be true, then 1. a *fixed salt* may be easily made, by mixing the *Caput mortuum* (by *Art* totally deprived of *Salts*) of any *Concret*, with a *Volatil salt*, and calcining them in a clos Vessel; whereof *I* doe much doubt. 2. From *Sal Tartare*

some *Earth* can be separat, by fugating the *Volatil salt*, whereof *I* doe alse much doubt. 3. Then there is no *Alcali* or *fixed salt*, *formally* or *simpliciter*; but only a *Volatil salt* adhereing to the *Earthy particles*. 4. From *Sal Tartari* alone, a *Volatil salt* may be sublimed; else *I* will never believe the forementioned *formal* composition of it, as an *Alcali*.

Neither are those Inferences obviat, or answered by his Experiment (*Pag.* 124. and 125. "præcipitating of a certain Earth from Sal Tartari its "Lixive, into which Spiritus Salis is poured; and "the Salinous Liquor being a little evaporat and "then crystallized, and mixed with a like quanti-"ty of Sal Tartari alcalisatum, and sublimed, *volatile sal quoddam urinosum inde adscendere naribus deprehendes*) unless the forementioned *Terrestrial substance*, and the *Volatil-saline*, doe æquiponderat the *Alcali*, which afforded them, whereof *I* much doubt.

I am not so fond of any *Hypothesis*, as to thinke, that by any of them, all the *Phænomena* can be resolved, and especially those, *viz.* concerning the *Loadstone*, the *Sympathetick Powders*, cureing *Wounds* at a distance, and the many *Sympathies* and *Antipathies*, which are well enough known, *&c.*

In the next place, tho I can not but commend, the many curious and ingenious Inventions, of modern *Philosophers*, for solving the *Phænomena*, yet I am apprehensive, that untill the received

Principles

Principles, or conſtituent parts of *Concrets* become impotent in this worke, we ſhould not proceed further, leſt by too nice and far proſecuting a buſineſs, to ſhun the exploded *Occulta qualitas*, and forementioned *common Principles*, we drive our ſelves upon the like, or worſe Inconvenience, by *Globuls* and *Angles*; which I fear, *Mr. Leewenhoeck* hath done, in his *Ingenious cauſe of the difference of the Taſte of Sugar and Salt*, regiſtred by the *publiſher* of the P. T. Vol 10. Pag. 383. Thus, ---*The big angles of the Sugar, touching many Globuls of the Tongue (every one of which* he affirmeth *to be many thouſand times ſmaller than a common grain of Sand) affecteth it with pleaſure. Whereas Salt, tho it diſſolves in Water, as to its great parts, yet doeth it retain ſome rigid ſmall particles, which by warmth, when they are taken upon the Tongue, grow yet more rigid, and are ſo ſubtile, that they prick the Globuls of our Tongue, tho not ſo ſtiff that they wound.* --- *Sugar, if it were ſo hard and rigid, as not to be diſſolved in Water or warmth, would be inſipid; foraſmuch as it would not cauſe any pungency upon the Globuls of the Tongue.* And a little before, --- *which would not, if they remained intire, cauſe any Taſte upon our Tongue.*

In relation to the premiſſes, *I* doe humbly propoſe thoſe doubts and deſires.

1. As for the ſtructure of the *Tongue* by *Globuls*, and of *Salt* and *Sugar*, by *Angles*, I ſhall not controvert it, yet I can not but admire, *their be-*

ing many thouſand times ſmaller than a common grain of Sand, the taking of which for granted (as he worderh it) ſeems little inferior to an *Occulta qualitas*, which cannot be demonſtrat.

2. I would thinke, that by *diſſolving in Water*, the *Angles* of the *Sugar* ſhould be altered, ſo as to comprehend or touch, moe, or fewer *Globuls* of the *Tongue* (for one drahme of *Sugar* will expand it ſelf, through many ounces of *Water*) by which the *Taſte* can not but be altered, if the foreſaid doctrine be true.

3. He ſeems to acknowledge this alteration of the *Angles*, or great parts of *Salt*, by which, tho diſſolved in *Water*, he affirmeth the *Tongue* not to be affected, but only by its *ſmall rigid particles*.

4. It ſhould have been proved, that *Salt* hath ſuch different parts, as alſo whether *Sugar* have them, or not, and likewiſe why the great parts of *Salt* doe not affect the *Globuls* of the *Tongue*, ſeeing one *Angle* of *Sugar* (which our ſight diſcovereth to be ſmaller than one of *Salt*) doeth touch many *Globuls* of the *Tongue*.

5. *It* being undenyable, that *loaf Sugar*, its *Angles* are much altered, by *Candying*; a reaſon would be given, why no man can diſtinguiſh betwixt their *Taſtes*, but only their *Touches*?

6. A reaſon would be given, why the ſmall particles of *Salt*, are not diſſolved in the *Water*, and are therefore the occaſion of the *Taſte*; ſeeing he affirmed, that *if Sugar were ſo hard and rigid, as*

not

not to be diſſolved in Water or warmth; it would be inſipid; for aſmuch as it would not cauſe any pungency upon the Globuls of the Tongue.

7. How cometh it to paſs, that whilſt the ſmall particles of the *ſalt* are amongſt (tho not diſſolved in) *Water*, they doe become more *rigid* and *ſubtile*, ſo as to prick the *Globuls* of our *Tongue*? and if this be true, why is not one drahme of *Salt*, alſe diſcernable amongſt a pound of *Water*, as amongſt one ounce?

8. *Succinum* is harder and freer of *Angles*, than *Sugar*, and not diſſolvable amongſt *Water*, and inſipid; tho it containeth a very ſapid *Oyl* and *Volatil Salt*. And *Sulphur Mineral*, tho it be hard, full of *Angles*, and indiſſolvable amongſt *Water*, yet it is *ſapid*. Therefore *I* doubt of *hardneſs*, and not *diſſolvableneſs* amongſt *Water*, their being the cauſe of *inſipidneſs*.

9. The rigid ſmall particles of *Salt*, which onely prick the *Globuls* of the *Tongue*; when by *diſtillation* they are deveſted, for the moſt part, of their *rigidity* and *ſtiffneſs* (being converted into a *ſpirit*, of an ſubtile and aqueous conſiſtence) do really wound the *Tongue* (which is acknowledged they could not do before *diſtillation*) *continuit atem ſolvendo*. Therefore I muſt alſo doubt of the *ſtiffneſs* and *rigidity* of *Salt* its particles, their being the cauſe of *Taſte*, or rather thinke, that thereby they are made more ſubtile and penetrant.

10. Seeing *Glaſs*, *Cryſtall*, &c, have *Angles*,

reaſons

reaſons would be given, for their not being diſſolvable amongſt *Water*, eſpecially ſeeing the moſt conſiderable conſtituent part of *Glaſs*, *&c.* the *Alcali*, was diſſolvable amongſt *Water*.

11. I deſire to know, why the *Globuls* in the *Extremities* of the *Fingers*, or in *excoriat fleſh*, are not affected by the *Angles* of *Sugar*, as are thoſe of the *Tongue*. If it be anſwered, that ſuch *Nerves* are appropriat to that *organ of ſenſation*, and not to the *fingers*, or other parts. I do further inquire why *excoriat fleſh*, is more ſenſible of the *Angles* of the *Salt*, or its *ſpirit*, than is the *Tongue*? Alſo, why the *Angles* of *Euphorbium*, doe trouble the Organ of *Smelling*, and not *excoriat fleſh*?

12. *White Vitriol*, is ſcarce diſcernable from *Sugar*, as to its *Angles*, and *diſſolvableneſs* amongſt *Water*, yet differeth greatly from it in *Taſte*: Therefore it ſeems there muſt be ſome other cauſe of the *difference of Taſte*, than the *difference of Angles*, touching the *Globuls* of the *Tongue*.

13. The new *Philoſophers* reduceing all *ſenſation* to *Touching*, after different manners, upon different *organs*, would ſeem neceſſitated to acknowledge an *occult quality*, or faculty in the *organ*, at leſt, which *taſteth*, but can not *ſmell*, *ſee* nor *hear*, and in the *organ* which *ſmelleth*, but doth neither *taſte* nor *ſee*, *&c.*

14. It being moſt probable, that the *Globuls* of the body, continue ſtill in the ſame poſture, as doe

doe the *Angles* of other bodies; reaſons would be given, why the *Tongue* of a *feveriſh*, or *Ictericall perſon*, can not diſcerne the native *Taſtes* of naturall bodies? and why *Muſke*, *Civet*, *&c.* are gratefull to a *Woman*, not in a *Hyſterick fit*; and moſt odious to *her*, when ſo, for it is much to be doubted, if it can be done by *Globuls* and *Angles*. Wherefore there moſt be a great variety of *Globuls* and *Angles* invented, for ſolving all the *Phænomena* concerning thoſe, and *Hippocrates* (*libro de priſca Medicina*) his *amarum*, *ſalſum*, *dulce*, *acidum*, *acerbum*, *inſipidum*, *aliaque ſexcenta*, which whoſoever ſhall take upon him to do, will write alſe Miſtically (not to ſay untelligibly) as any ever did.

15. Seeing our *Sight* diſcovereth *Sugar*, *Salt*, *&c.* to be made up of *angular parts*; and that *liquids* doe forme themſelves into *Globuls*; a reaſon would be given for the affinity of *Sugar* and *Honey* in *Taſte*.

16. *Salt* is *Cubical*, and *Nitre Piramidall*, or *ſpirall*, which would ſeem to infer a greater pungency from *Nitre* than *Salt*.

17. If *Mr. Levenhoek* his Opinion be true, then there is no difference betwixt the *touch* of a *blunt Needle* (which will onely prick and not wound) and the *Angles* of *Salt*, upon the *Globuls* of the *Tongue*.

18. A reaſon would be given, why *pulveriſing*, or *diſſolving in Water*, altereth not the *touch*

touch of *Sugar*, or *Salt*, perceptible by *taſte*, as it doth the *touch*, perceptible by the common ſenſe of *touch*, reſideing in the extremities of the Fingers, *&c.*

Having propoſed my doubts, concerning the different cauſes, of the different *taſtes*, of *Sugar*, and *Salt*, I will now offer my own Opinion.

I do conceive, that the cauſe of Sweetneſs, may be alſe rationally explained, by affirming it to proceed from the combination of an *Acid* and a *Sulphur*; which I prove, 1. by the *Artificiall* reſolution of *Honey*. 2. By the *Artificiall* compoſitions of *Sacch. Saturni*, and *ſpiritus ſalis dulcis*. 3. By *Vitriol* and *Tobacco*.

1. A Pound of *Honey*, will afford by *diſtillation*, 1. about an ounce of inſipid *Phlegme*, of a pleaſant Scent, like to that of *Honey*. 2. A conſiderable quantity of an *Acid* and yellowiſh *ſpirit*. 3. Some ounces of a *reid ſpirit*, commonly called *Oyl*, becauſe of its colour and opacity. 4. About an ounce of a very *black and ſpongious hard ſubſtance*. 5. The *reid ſpirit* being rediſtilled, yeeldeth more of the *yellow ſpirit*, of a more *Acid taſte*, and more of the forementioned black ſubſtance (remaineth in the bottom of the *Cucurbite*) which *Calcination* depriveth of the little *Sulphur*, which made the reidneſs and blackneſs.

Let the curious and ſedulous inquirers proſecut this further, 1. By diſcovering the proportions

tions of the *Acid* and *Sulphur*. 2. By inquyring after the ſtructure of the parts of the *Acid* and *Sulphur*. For, whoſoever doeth otherwiſe, is like one teaching the *Logarithmes*, before *Numeration*, *Addition*, *&c*; or, one telling Children, that ADDO is made of two *ſtraight lines*, making one *Angle*; and another going betwixt them, of two *ſemicircles*, two *ſtraight lines* and a *Circle*, and not of two words, AD, and DO.

2. *Saccharum Saturni* is made of the *Acid Vinegar*, impregnat with the particles of *Lead*, which contain a little *Sulphur*. And *ſpiritus ſalis dulcis*. is made of the *Acid ſpirit of Salt*, and the *Sulphureous ſpirit of Wine*.

3. One grain of *Acid Vitriol*, taken into the *Mouth*, or mixed with *Tobaco*, into the *Pipe*, doeth dulcifie its *Taſte*.

The truth of the premiſſes, doeth further appear, by conſidering that the *Sulphur* being ſeparat from the *aqueous* like *Liquor*, the *Acidity* doth immediatly bewray it ſelf, or appear in its native forme, with its naturall *Taſte*; as is moſt evident in *Sulphur-Minerale* (alſe well as in *Honey*, whoſe *inflammable part* (or *Sulphur*) being put in a rapid motion, by *inflammation*, it caryeth up with it the *Acid ſpirit*, which condenſeth into an *aqueous Liquor*, called *Spir.* or *Ol. Sulphuris per Campanam*.

Moreover, a ſolid reaſon would be given, why no *Liquid Acid* (excepting the *Alcaheſt*) having

 diſſolved

diſſolved a *ſolid bodie*, can be ſeparated from it, with capacity to diſſolve more of the ſame, or of another. Seeing the *Corroſive ſalts* of *Sublimed Mercury*, will deſert the *Mercury*, and diſſolve *Antimony*; and *Sulphur Mineral*, which had diſſolved *Mercury* (in making *artificiall Cinnabar*) will attach it ſelf unto *Iron*, and permit the *Mercury* to paſs, in its native forme.

Likewiſe, ſeeing *Salts* are made more ſubtile and penetrant, by *diſtillation*, and that *Aqua fortis*, will diſſolve *Iron &c*, but not *Gold*, untill it be made craſſer by getting a little *Sal-Armoniack* (not diſtilled) diſſolved in it; I feare this *Phanomenon* will not be ſolved by the doctrine of *Angles*, better than by the old *Occulta qualitas*.

As for *Water*, its being capable to diſſolve ſo much *Sugar*, and no more; then a conſiderable quantity of *common Salt*, then *Nitre*, *&c* I can not thinke the only reaſon thereof to be, the difference of its *Pores*, admitting *Corpuſcules* of various Configurations, (*Piramidal*, *Cubical*, *&c*) which protrude the *Materia ſubtilis*, wherewith thoſe *Pores* were replet: for,

1. Then it muſt follow, that a *Glaſs* holding twelve ounces of *Water*, when nyne are only put into it, after putting in one ounce of *Sugar*, another of *Salt*, and a third of *Nitre*; the *Glaſs* ſhould not appear fuller than before; ſeeing thoſe bodies were only admitted into the *Pores*, replet with the *Materia ſubtilis*.

2. A

2. A pound of *Water*, impregnat with the vertues and particles of severall *simples*, will admit of a pound and a half of *Sugar*, to make it into a *Syrup*, as also of a considerable quantity of *salt &c* which if it be only by the forementioned *Reception into the Pores*; then the *Pores* which were contained, were larger than the *Water* which contained them.

If one pound of *Water* first saturat with two pound (or thereabout) of *sugar*, will admit only one pound of *salt*, and half a pound of *Nitre*, *&c* and another pound of the same *Water*, first saturat with one pound of *salt*, will only admit of one pound of *sugar*, *&c*, the *reception* can not be only by *the congruity of the pores, to the various configurations.*

Therefore I thinke, that the busines might be better explained, by the *Menstruum's Analogie* with a *Ships hould*, which being first loaded with *sugar* or *salt*, will admit but very little of any other *Body*, and especially of *Lead*; wherewith if she should be first loaded; she could not admit of any, so, or like, considerable quantity of *sugar*, or *salt*, so as to be able to support, and saile with it.

I doubt not of the *difference of Colours*, its proceeding from the *different Reflection of the Rayes of Light*; only I would thinke it especially (if not only) to proceed from their *Reflection* from the *sulphureous parts*: because *Bodies* are only discernable by our sight, as they are more or less impreg-

nat with *Sulphur*, and especially if the *Sulphur* be *opacous*. For, when a *Body* is almost totally deprived of its *Sulphur*, it becometh almost invisible; as is most evident by the *finest Glass*, which is scarce discernable, when betwixt us and the *light*, which it transmitteth better, than doe other *Bodies*, more *porous*, as *Cork &c.* And, tho *Oyled-Paper*, doeth transmit *light*, better than before; it is, because the *Oyle* rendreth the *Sulphur*, of the *Paper* more *diaphanous*. And seeing the *vapor* or *Spirit* of *inflamed Sulphur Mineral*, doeth albifie a *reid Rose*, and *Peeonie Flower*, in the same position to our *Eyes*, it would seem, that the *rayes of light* are differently sometimes reflected; because of a positive and *Physicall* alteration of the parts of the *Sulphur*, besides that of *position*; as when a drop of *Ol. Guajaci*, *Absynthii*, or *Lithanthracis*, put into a large vessell with *Water*, and is by agiration, converted into a Large *Pellicula*; as the *Water* moveth round, the same parts of the sturnaging *Sulphur*, change their *Colour* several times, according to their different positions to our *Eyes*, without any *Physicall* alteration of the *Sulphureous* parts. Moreover, recent *Urine*, which is much saturat with *Sulphureous* parts, as is the Mornings, tingeth *Snow* with a *yellow colour*; but if it be not saturat, as immediatly after liberall drinking, it makes *Snow* of a *green colour*. Likewise, I believe *Snow* to be only *Water* mixed with *Air*, in a due proportion: because

Water

Water falling from any hight, without being supported by any solid body (as when it descendeth upon a *Milnes Wheell*) it appeareth alse white as *snow*; but returneth presently to its former Colour, when it lighteth upon the Ground. And the *Surges* breaking on the *Shore*, confirme the same.

As for the *Organ* of *Smeling*, it is onely affected by the *Sulphureous effluvia*; where of two differently swelling *Bodies* being deprived, that *Organ* can not distinguish the one from the other.

As for one ounce, of an *Antimoniall Medicine*, its continuing for many years, to impregnat many hundreds of pounds of *Spanish Wine*, one after another affused to it, and that without any perceptible diminution of its quantity or weight; I doe imagine, that this *Phænomenon* can not be so well solved by the *Doctrine* of *Globuls*, *Angles*, and *pores*; as by affirming, that the *salt* and *Sulphur* of the *Antimony*, doe convert the *salt* and (especially the) *Sulphur* of the *Wine*, into their own natures; (and really fixeth the *Sulphur*: for *Spanish Wine* so impregnat, will keep very long) as the *seminall principle* of *Antimony*, at first, did its *aliment*, in the bowels of the Earth, making of it *Antimony*, and not *Lead*. As the *seeds* of two, or moe, different *Vegetables*, sowen together, doe convert the same alimenting *Rain*, and what they therewith attract, out of the same homogeneous like *Earth*, into *juices*, and *Vegetables*, of different operations.

For

For a Concluſion, I will add, that I thinke the doctrine founded upon *the conſtituent parts or principles of Concrets*, having *fundamentum in rebus*, is like to the *Antients* their inſtructing Names of *Simples* (eſpecially *Vegetable*) which were either, 1. To ſhow their *Vertues*; as *Tuſſilago* i. e. *Tuſſimago*, or, 2. Their *Colour*, and its variety; as the ſame Herb is called ἡμιλευκον i. e. *dimidium album*, and ἡμιλῖυκον i. e. *facies humi verſus albicat*, 3. Their *figure* or ſhape; as *Wilde Bougloſs*, is called ἔχιον, from ἔχις, *Vipera: quoniam ſemina habet Viperinis capitibus ſimilia.*

But this *Doctrine* by *Globuls* and *Angles*, is altogether *Imaginary*; and only paralelable, by *Bernardini Gomeſii Explicatio vocabuli* ἅλς, *ſive ſalis* (which *Glauber* hath inſert, at the end of his *Treatiſe, de Signatura Salium*) from which *Word*, and each of its *Letters*, he preacheth *the doctrine of the Bleſſed Trinity*, whereof take this Hint.

"Chriſtus Apoſtolos ſuos vocavit Salem Terræ, "nos ipſum ſummum atque intemeratum ſalem "Cœli appellamus. --- Hanc divinitatem u- "nam & eandem tribus communicatam perſonis, "Sal, ſuo, quo in una ſyllaba conſtat trium li- "terarum nomine, tam Græcè quam Latinè, "quodammodo exprimere, ſeu potius adumbra- "re conatur. *&c.* ----

"α, Quæ ab infinita rotunditate, duobus veluti "cornubus, in conſequentes literas produci vi- "detur. --- Idem duabus ex ſe productionibus,

aliis

" aliis divinis perſonis naturam ſuam effundit,
" ... quorum altera, generatione filium, altera
" vero ſpiratione --- Spiritum ſanctum producit.

Then he preacheth the ſame Doctrine from the Letter א; and alſo from the Letter ר; wherewith I ſhall not further trouble the Reader; but only, upon this *Syllabicall, Literall, & Angular-Sermon*, I can not forbear to make theſe Animadverſions.

1. What ever ground there may be for this doctrine from אלר; ſure I am, there is little or none at all in א א ש.

2. Without *divine revelation* in *the Scriptures of the Old and New Teſtaments*, this *Philoſopher* had never learned ſo much, or any of thoſe Myſteries from thoſe Letters.

3. If there were any probable ground, for this *Petulant* and ſeemingly ingenious *Pedantrie* (not to call it worſe, for, *non ſemper magna liset componere parvis*) it is like that the *Almightie*, would have ſo compoſed *His* own *Name*, in *His* own firſt language (the *Hebrew*) thereby to teach us the *Myſteries*, of his *Nature*, *Perſons*, and *Properties*; but he hath mercifully done it, by *a more ſure word of Prophecie*, which teacheth our dull Capacities more plainly.

4. *Chriſt* calleth himſelf, *the Bread* (and not the Salt) *which came down from Heaven. John* 6. 41. 51.

5. *Divines* do well exhort us to ſtudie the knowledge

ledge of God, from the *Books* of *Scripture*, *Creation*, and *Providence*, and this *Philoſopher* hath dreamed a fourth, of one *Syllabe* made up of three Letters; which repreſent thoſe moſt certain and *divine Myſteries* no more, than the *ſpots* in the *Moon*, doe a *Man* with a burden of *Thornes* upon his back; as Children commonly imagine.

But, If it were lawfull, *Maxima componere parvis*, I might rather take occaſion, from the Doctrine of the moſt bleſſed *Trinity*, to infer the probability of the three active Chymicall Principles, *Salt*, *Sulphur*, and *Acid ſpirit*, as the three Phyſicall *Witneſſes* on *Earth*, and naturall Conſtituents of all Concretes; which are (1.) divided into three Tribes, *Animal*, *Vegetal*, and *Mineral*; (2.) Whoſe Dimenſions are but three, *Longitude*, *Latitude*, and *Profundity*, (3.) the great Bodies which we ſee conſtituting the *ſublunary World*, being only three, *Earth*, *Water*, and *Air*. (4.) Whoſe *Natural Motion*, is but threefold, *Downward*, *Upward*, and *Circular*, (5.) In which all Creatures having *Life*, are either *Rational*, *Senſitive*, or *Vegetal*. Of which three Principles (whil'ſt we are in the Body) we may ſay, as *Prov.* 30. 18. *There be three things which are too wonderfull for me, and a fourth which I know not*; viz. The manner how *Natures-God*, hath planted and mixed them, in the firſt created *Matter*, *Earth* and *Water*.

I am further confirmed in my belief of the probability

bability of the premiſſes, when I conſider the *Analogie* betwixt the *Macrocoſme* and *Microcoſme*; for, as in the *former*, God firſt created *Earth* and *Water*, and then out of theſe formed *Salt*, *Sulphur*, and *Acid Spirit*; ſo He created *Man*, firſt *Male* and *Female*, and out of theſe, by His Omnipotent Providence, did produce the three *Orders*, of, and by which, *Humane ſociety* is made, and conſerved in its due order, *viz.* the *Clergy*, *Magiſtracy*, and *Laity*; the firſt of which, our Saviour, *Matt.* 5. 13. calleth *the Salt of the Earth*, *whom he did chooſe* (as Divines ſay) *to ſeaſon and preſerve thoſe, who are corruptible by ſin.* Hence it is, that *Fran. Junius*, Analyſ. in Levit. 2. 13. *Oblationi muneris tui adhibeatur ſal, incorruptionis ſymbolum in foedere Dei, prout à Chriſto ipſo exponitur*, Marci 9. 49, 50. --- *habete in vobis ipſis ſalem.*

What the *Apoſtle St. Paul*, hath written to, and of the *Romans Chap.* 1. *verſe.* 19. *&c.* in relation to *God*, *mutatis mutandis*, may be ſaid of ſome *Philoſophers* in this Age, their *Inquiries* into *Natures Myſteries*, *viz.* "They not being "ſatisfied, with what may be known of *Nature*, "bywhat is manifeſt from its Operations, and "*Art* hath demonſtrat, *viz.* the inviſible con-"ſtituent parts or *Principles* of *Concretes* (before "their *Reſolution*) which are clearly ſeen and "underſtood, by the things into which *Art* re-"ſolveth them, ſo that they are undenyable; are

" become vain in their imaginations, and pro-
" fessing themselves to be wise, are become Fools:
" changing the visible, noble and active *Prin-*
" *ciples* into imaginary and imperceptible *Globuls*,
" and *Quadrangular*, and *Cubicall* things; which
" one with another, worke untelligibly. So
" that being full of envy, by debates and whispers,
" they indeavour to murder, and backbite; and
" by boasting with and of, their small imaginary
" and *atomicall Inventions*, they hate and diso-
" bey their *Ancestors Positions*; and being with-
" out understanding, they flout the *Combination*,
" of naturally *praexisting Bodies*, *darkning coun-*
sell by words without knowledge (*Iob.* 38. 2.)
to the deserving also the Demands, immediatly
following, in the rest of the Chapter.

It is probable, that some *Ingenious persons*, who are daily conversant, with the *Operations* of *Nature* and *Art*, may discover some things, especially, in the last Sheet, to be such as, (I intreat,) may be lookt upon, only as grounds of my *doubting*, and *proposals* to their further *Disquisition*; being writ in the Countrey, by One, who hath had very little occasion, for becoming an *Experimentall Philosopher*; but is a reall honorer and admirer of all such; to whose Censure he humbly submitteth this Product of his few *Chymicall Experiments*, little *Reading*, and *Meditations*, upon the 3 Books, of *Scripture*, *Creation*, and *Providence*.

FINIS.

Scurvie Alchymie DISCOVERED.

By way of Animadversions upon several Expressions of *Dr. Gideon Harvey*, in his *New Discovery of the Scorvey*; wherein he accuseth *Dr. Th. Willis* of *Erroneous Ætiology*, and *Sennertus* of *Hallucination*, &c.

In which is a Hint, at the Nature and Usefulness, of Chalybeat Medicines.

By MATT. MACKAILE Apoth. and Chirurg. *Alias*, Chirurgo-Medicine.

Carmina Proverb.
Respice quaeso bene, non sunt Cervisia spuma.

ABERDEEN,
Printed by IOHN FORBES,
Printer to the TOWN,
Anno Dom. 1683.

To the Courteous

READER,

THis Author *Dr. Gideon Harvey*, being One of the moſt puiſſant and Gigantine Enemies to all *Apothecaries* and *Chirurgeons*, (as is evident from his many *Invectives* againſt them, in all his Writtings) I thought it would not be unworthy of my PAINES, at this Time to diſcover, that he is *exi*$^{mi\grave{e}}_{gn\grave{e}}$ knowing in that Art, (notwithſtanding his great Prætenſions) that thereby you may calculat the hight of his Reaſon and Skill, in writting ſo maliciouſly againſt the *Profeſſors*, of thoſe two moſt Antient *Arts*. This is the great *Medicinal*, *WIT* and *Politician*, who, for *the ſuppreſſing of all* Practiſing Apothecaries, and Preſcribing Chirurgeons, hath writ a whole Volumn, called, *The Family Phyſician*, *and Houſe-Apothecary*; wherein he adviſeth, *All Maſters of Families to prepare their own Medicines*; concerning

concerning which, he harn given particular *Directions*; in all which he diſcovereth alſe little skill in *Pharmacie*. And, another ſuch *Anonymus Author*, hath writ another Booke, viz. *Medela Medicorum*, for the ſame End, adviſing *all Doctors to take Pharmacie into their own hands &c.* and a third *Anonymus Author*, of *The Accompliſht Phyſician, &c*; hath taken the third part of the ſame *Tune*, wherein he praiſeth the *Apothecary*, as *a Lump of confident Ignorance*, and *an Aſſe*, Concerning which *accompliſht Epithets*, you may expect ſome Animadverſions, in defence of my *Brethren*, and *Profeſſion*, from the ignorant Reflections eſpecially of ſome *Fool-aſophizing Scribblers*, and eſpecially the *Accompliſht Phyſician*, who affirmeth *the Apothecary not to be of above 700. years ſtanding in the World*; tho He be the moſt antient *Proprietor* in *Medicine*; as ſhall be evinced, by the moſt unfeigned honorer of all Learned and ingenuous Doctors of Medicine, and

Thy Humble Servant,

M. M.

Scurvie

Scurvie Alchymie Diſcovered.

By way of Animadverſions upon ſeverall Expreſſions of Dr. Gideon Harvey, *in his* New diſcovery of the Scorvey, *&c.*

AS in Theologie it is a moſt excellent Maxime, *Nihil ſatis dicitur, quod non ſatis diſcitur*; ſo in that, and all other Sciences and Arts it is alſe ridiculous, *ſcripta ſcribere, alienacorradere, ac non intellecta mendacia, eaque abſurdiſſima affirmare.* Which the learned *Zuelfer* (*Append. ad Animadv. pag. 67.*) affirmeth ſome to have done, *Qui apicem Chymiæ ſe digito tetigiſſe arbitrati ſunt*, amongſt whom *Dr. Harvey* deſerveth an *Armed-Chair*; which I ſhall endeavour to make good, from a few of his Expreſſions.

1. In the firſt place you would notice, what Teſtimony of his Reſpects, he giveth to the learned and famous *Colledge of Phyſicians at London*, in the

the Concluſion of his *Preface*, to his *New diſcovery of the Scorvey*; when he endeavoureth to ſatisfy all Perſons, concerning *his not being a Member of that Society, whoſe fame* (as he writeth) *is ſpread alſe far as the Art of Phyſick it ſelfe*; and that with thoſe two moſt conſiderable Reaſons. 1. *In the time of Rebellion, when I firſt arrived at London, to initiat my* Practice *in Phyſick --- the humor of ſome was much toward* Preaching, Praying, *and all the Knacks of* Phanaticiſme, *others driving a way quyte contrary*; all which, and alſo, *Medio tutiſſimus ibis*, he undervalued. 2. *Now finding the Colledge re-eſtabliſht --- and many to have got in, who, when I began to practiſe, were not come from the Gramar-School, if I ſhould come in, I muſt give precedency to thoſe Youngſters, which, I imagine, I ſhall never doe.* The plaine Engliſh whereof is, that the Piety of the *Colledge*, and his *Pride*, could not agree, as *the Iron and Clay in the Toes of Nebuchadnezzar's-Image*; *could not mixt.* Did ever two ſuch *impertinent Reaſons*, for any thing, drop from the Pen of the moſt ignorant Apoth. or Chirurg? But ſome men thinke, that they are no ſooner dignified, with the *Title* of *Dr.* than all that they ſpeak or write, ſhould be looke upon as *Oracles*, tho never ſo inſignificant and ridiculous.

2. Whereas the moſt Learned and ingenious *Doctors of Medicine*, *Willis*, *Sydenham*, *Smith*, *&c.* and *Neham. Grew*, have preſented

preſented the *World* with nothing, almoſt, but *Novelties*, this *Dr. Harvey* hath ſet before us, only *Ius Pridianum*, *Larded* with *Detraction*; as is moſt evident in his 1. *Chap*: of his *New Diſcovery of the Scorvey*, in the begining whereof, he undervalueth *Eugalenus*, *Solomon Albertus*, *Wierus* (and *Galen* himſelfe, in the by-going) as *recollecters* from one *another*. Yet in all that *Chap*. he hath not one ſentence, worth the reading, but what he hath ſtol'n from them, or others, of which diſtemper, I fear, the whole book is alſe ſick. His great *quarrell* with them is *their prodigall number of Scorbutick Symptoms*, which in his own 10. *Chap*. he hath converted into no leſs than 10. *Sorts of Scorvey*, beſydes his difference, betwixt the *Engliſh* and *Dutch Scorvey*. His ſecond ſort hath 9. ſignes; the third 12. the fourth, in a continued diſcourſe, containeth, at leaſt; 15. the fifth, 13. the ſixt, 6. the ſeventh, 6. the eight, 3. which he expreſly diſtinguiſheth; and, I know not, how many more, in a continued diſcourſe. In all which, I am confident, there is much more impertinent, and imaginary variety, than in *Galen* his *Centuries of Pulſes*, ſo much vilipended by this Author, whom a *Barba tonſor* might eaſily out-doe, in writting thus; for in his 9 *Sect*. of his 16 *Chap*. he confeſſeth *coincidence*. Where alſo, having vilipended *Galen*, he promiſeth *to divulge ſome-thing particular, in ſuch termes, as ſhall as little tire you in*

 reading,

reading, as himself in writing (so fond was he of his own *scriblings*) notwithstanding of which big promise, the first great *Arcanum* (and, probably, the greatest of all, not heretofore knowen) which he discovereth, is *the vulgar error in the Orthography of the word Scurvey, which ought to be written Scorvey*; which without his leave, I thinke would be better *Scorbey*, seeing its Originall was from *Schoorbuyck* (a *Bellgick* word, according to *Engalenus*) or *Scorbuc*, or *Scorbein*, according to *Wierus*. However, sure I am, that any of them sounds better, than this Criticks *Fevor* (*Pag.* 131. *&c.*) which a man cannot pronounce, but as if his mouth were full of a *Bag-pudding*. Moreover, *Pag.* 57. he refers his *Reader* to his own *Treatise de Febribus* (not at all mentioning *Willis* his *Diatriba's de fermentatione et febribus*) to be informed of the word *ferment*, which (as he sayeth) takes its derivation *à fremendo*, and not *fervendo*, yet he desireth not, that it should be called Frement. But *Gold man* the latest *Lexicographer*, sayeth, *Fermentum à fervere, ferveo, to be angrie and rage, to boile, to seeth.* And *fremo*, signifieth *to roare, or make a noise, like Waters to be angrie, or greatly commoved.* All which appear in *fermenting Liquors*, which sometimes, will brust the *Casks* asunder. Likewise, *Pag.* 57. 58. he is displeased, that the *Acid juice* in the *Stomach*, is called a *ferment*, and not a *dissolvent Liquor*, having forgot, *frustra fit per plura*,

plura &c. And *Pag.* 54. he writeth *Saliva, quasi sal liquor*; but *Golaman* sayeth better, *quod per linguam saliat et ejiciatur*; to which I may add, *quod saliendo vadat*, and so this zealous *New discoverer*, hath all the Letters of the word. Are we not much oblidged to this Author? for thus discovering his *Accompliſhments*, and taking so much pains to informe the *World*, that there may not be one word in *Medicine*, wrong writen, according to *Aquila non captat Muscas*: for all which labour he scarce deserveth so much thankes as another *Etymologiſt*, whom I heard say, *Antimonium, est quasi Antimenium.* i. e. *Morborum omnium propugnaculum.* And, *Stibium*, i. e. *Tibi & mihi Medicamentum.* But those are the zealous, and Learned decryers and undervaluers of the Apoth. and Chirurg. tho never so well qualified.

3. In his *New Discovery Pag.* 42. *A mouth-Scorvey* (which other Doctors, call only a *Symptom*) *is engendred by a corrupt Acid salt* (a rare expreſſion forsooth, concerning a *living person*, and *Salt*, the great preservative from *Corruption*) *rendred fluid* (which he stole from *Willis*) *and a Volatil salt converted into Corroſive* (by which he can mean nothing, but its becoming *fixed*) *inordinat in motion* (notwithstanding its alleadged *fixation*) *and united with a fuliginous salt.* To which last he giveth neither *corruption*, *acidity*, *fluidity*, *fixity*, *corroſiveneſs*, nor *motion*, either *ordinat*, or *inordinat*; neither tells he, where this *Fuligo*

was generat. He would therefore, in his next *Impreſſion*, informe, that it was bred in the *Fornax* or *Fornix* of the Mouth, which had ſmoked too much *Mondungus*, (tho, moderatly taken, it be a good *Antiſcorbutick*) without rinſeing down the *ſoot*; which few *Tobaconiſts* are guilty of ſeeing commonly (as one ſaid) *a Pipe drawes on a pint, and a blaſt drawes on a draught.*

Might not an ignorant and pedantick Chirurg. write thus, to alſe good purpoſe. "The Sciatica, "or Hip-Gout, is cauſed by the Nitrous Volatil "Salt of the Hæmorrhoidal blood, its Effluvia, "the ſpirit of Urine, its Miaſmata; and the Stet-"coraceous Sulphur, its Steems, Tonitruating in "the concavity of the Cup of the Coxendix, whoſe "furious vibrating, will ſome times, extrude the "round-head of the Thigh-bone, out of this, its "naturall, receptacle.

From this, and the following Inſtances, it will be evident, that this *Dr. Miſcet quadrata rotundis*, and is moſt like to a *Geographer*, who only travelling in *Moon light*, and ſailing by an *Over-ſet Ship*, floating upon her ſide, would write, "That he had ſeen a big *Monoceros*, or *Unicorne*, "misfortunatly drowned, with three very long "Legs, with little round Feet, a ſtraight Taile, "hanging downward, and dyed reid, with hæ-"morrhoidall blood; and one long Horne in his "Forrer, with a Timpanitick Belly; whoſe Haire "the ſalt of the Sea had affected with the Epilepſie,

and

" and by its inordinat and irregular motion, had " diſcontinued his ſkin, into many Quadrangles " (gradually differing in bigneſs) and one large " Triangle, near to his Pudenda: ſo that all his " black Nerv's and Tendous were diſcovered; and " his bones were like unto Firr; whom he would " have thought a Ship, under ſaile, if he had " been ſwiming upon his back, with his feet aſ- " pecting the Zenith.

4. *Pag* 46. He ſets down the *Vertues* of *Spiritus Tartari*; as if he had been the firſt diſcoverer of them; without ingenuouſly telling, that *Angelus Sala*, was the man, as *Zuelfer* did in *Mantiſſa ſua Spagyr Pag.* 414. This is only one of an hundred Inſtances, which I could give, to this purpoſe; for proving him a moſt *Plagiary Scribler*.

5. *Pag.* 82. *Aromatick Oyles (as Cinnamon, Cloves, &c.) are coagulat into a thick Balſam, by affuſing Spirit of Sal Armoniack, which is an infallible Character of Contrariety between them.*

From this *Conſequence*, may not an ignorant Apoth. (who hath ſeen the following *Experiment*) 1. *Accompliſhtly* infer, that there muſt then be a great affinity betwixt *Aqua fortis* and *Camphire*, which being put into a Glaſs together, and ſet into a Sand-furnace, moderatly hot; the *Camphire*, is ſoon diſſolved into a liquid Oyl; which, being poured out amongſt fountain-Water, is again immediatly coagulated into a ſubſtance, altogether like *Camphire*, as to colour, ſmell, conſiſtence,

and

and inflammability. As alſo, that therefore, there is a great contrariety, betwixt *Camphire* and *Water*. 2. Would it not have been expected, that ſeeing *Dr. Willis* did from the ordinary preparing of *Wines*, brewing of *Ale*, *&c*, ingeniouſly preſent the World, with a new Definition of *Fermentation*, and Theory thereanent) this *New diſcovering*, and *Unmaſking Family-Phyſician*, would have *Ætiologically* explained the *Phænomena*, of this curious *Coagulation*? from the curious Doctrine of the various poſitions, or configurations, of the particles of *Matter* (the only cauſe, why a *fluide* into a *ſolide*, and a *ſolide* into a *fluide*, are converted) rather than ſo didactically only, by the old obſolet *Occulta qualitas* of *Contrariety*. Where was the *Capacity*, which he and his Complices, did deſiderat in the Apothecarys, when he wrote thus. Yet, tho this his *Experiment* be made up of *Vegetable Oyles*, and *Spir.* of *Sal Armoniack* (which is partly *Animal*, *Mineral*, and *Vegetal*) he is not aſhamed (*Pag.* 131.) to deride *Willis his* forementioned *practice*: *becauſe his ſimilitude being taken from a Vegetable, and vive Animal, doeth not quadrat.* So accurat would he be, that he would not have a *ſimilitude* to *claudicat*. But he would doe well to ſhow, how this his own Doctrine doeth quadrat.

Alſo, *Pag.* 229. of his *New Diſcovery*, *&c.* He accuſeth *Aloe*, *of bitter, acrimonious, and lixiviall parts, of a nature colliquative and irritating*, that

is apt to force blood out of its veſſels, and particularly, to excite a Teneſmus. Yet ſoon after *Pag.* 232. he writteth. *It is among the Records of Experience, Aloetick Pills are a moſt ſafe and effectuall preſervative from the Scorvey --- they offer no violence to Nature.* Is not this, to write *Quicdquid venit in Buccam.* 3. May it not be rationally alleadged, that thoſe, ſo coagulated *Oyls*, are not ſo fit for making *Balſems* without *Wax*, or *Oyl of Nutmegs* (which he alſo diſcovereth, as a great, tho old, Secret, little worth,) ſeeing it is very probable, that by this Coagulation, their genuine Properties are impared. As *Znelfer* hath moſt rationally affirmed, concerning the *fixed Salts, which ſome prepare with Aqua fortis, to make them cryſtallize handſomly, but to the enervating* (at leaſt imparing) *of their native properties, and converting them, into aluid Ens*; as in *Tartar Vitriolat*, wherein the *Sal Tartari* is deprived of its faculty, whereby it did attract the *Air*, and diſſolve by *deliquation*, into a Liquor, called its *Oyl*. And therefore, *Append: ad Animadverſ. Pag.* 3. he ſayeth, *In præparationibus Medicamentorum, rerum virtutes integre conſervandæ ſunt.* And *Pag.* 27. *Medicamenta non ſunt virtutibus caſtranda.*

6. *Pag.* 64. *Its a conceſſion granted by all, that moiſture is more apt to turne Acid, in an extinct body, than living.*

This Author *Pag.* 86. proveth *Mans blood to be aluminous,*

aluminous, austere, &c (by the testimony of the vulgar Barber Chirurgeons, and Bleeders (tho he thinketh them incapable to pass their verdict of it, whilst in the body, by touching the Pulse) and here he giveth you his own infallible *Theorem* (without any probation) by which, and a very few others, he endeavoureth to refute the *acidity* of the *Succus Pancreaticus*; which *Anton. Deusingius*, hath done, much more learnedly.

Concerning this *Theorem* I must say, 1. he had spoke more knowingly, if he had restricted it, to the moisture in the body, which is not naturally *Acid*, and not expressed himself so absolutely; and then all that his *Theorem* would have amounted to, is this; That a dead body is more apt to putrifie, than a living, which is a great Mysterie. Yet it would be better worded, seeing a *sphacelating Gangren*, will destroy the member of a living body, far sooner than Putrefaction will a Dead one. 2. I have often known *Brandie* and *Aqua vitæ*; by very suddenly becoming *Acid*, in the Stomach, excite a very troublesome *Cardialgia*, when associat with the *Chyle*, whose *salt*, in its preternaturall *Fermentation*, *Elusorem adeptus esset*; according to *Willis*. 3. Is it not ordinary, to wash extinct bodies, with *Brandie*, to preserve them from Corruption. Moreover, I did see (at *Edinburgh*, in the Studie of that most learned, and expert Obstetricator, *Dr. Michael Young*) a *foetus* of 15 weeks, suspended in a Glass full of *Brandie*, for its

its preſervation. 4. The Naturall *Acid* Liquors, in all Bodies, are ſo at their firſt Generation; whether in *Animals or Vegetables*; in which laſt (eſpecially in their *fruits*) they increaſe in that Quality, as they doe in Maturity; proceeding from *auſterity*, *acerbity*, *acrimony*, *&c. unto Acidity*.

7. Pag. 247. He accuſeth *Elixir Proprietatis*, (*prepared according to Crollius*) *of two Inconveniencies*; as if, forſooth, no man had diſcovered them before him. As 1. *By too great a proprotion of the Spirit of Sulphur, the other Ingredients are aduſted*; which *Zuelfer* did advert to, e're this man was a *Doctor*. 2. *By reaſon of the various digeſtions, and diſtillations, is conſumed a great deal of time, attended with ſome needleſs Coſt and Charge*; *both which* (ſayeth he) *the Colledge, of Phyſicians at the Hague endeavoured to avoid... in their Pharmacopœa fol.* 109. Which they have only done, according to *Zuelfers* advice, which, yet, they have not altogether followed. Probably, becauſe they were not then honored with *Dr. Harvey* his being a Member, who (notwithſtanding his being, ſince, admitted into that *Society*) alſo cenſureth their *Preſcription*, as guilty of a *Precipitating and third Inconveniency, upon inſtillation into any aqueous Liquor* (a Crime, whereof many an excellent Medicine is guilty) and therefore he gratifieth the World, with a *Preparation* of his own. I ſhall not alledge, that the *Elixir*, ſo made, will ſtill Precipitat, only I muſt ſay. 1. That

his *Preſcript* is very guilty of the firſt Inconvenience, before mentioned. For he ordaineth *Aloes Succotrinæ, Myrrhæ electæ, ana ʒj. Salis marini bene exſiccati ʒiiij. to be diſtilled per Retortam vitream, in Arena. And when the* lb. *iſs. of Spir. Vini is affuſed, to the diſtilled Oyl, he further addeth, Spir. Salis rectif. ʒj.* (without giving any reaſon for it, or for his not rather taking a greater quantity of *Sal marinum exſiccatum*) *which muſt be digeſted per dies quatuor, and then diſtilled. And, laſtly, the ſupernatant oleous drops, muſt be artificially added to the Liquor.* Which great Myſtery, he hath reſerved to himſelf; whereas, there is no man, who knoweth any thing in *Chymie*, but knoweth it alſe well as he; *viz. ſaccharo mediante.* Moreover, by this *proceſs*, he falleth into the ſecond Inconvenience alſo; from all which *Znelfer* hath freed men, who will follow his advice. 2. This great *Philoſ. by fire*, ſhould have obviat the ſcruples, not only of ignorant Apoth. and Chirurg. but alſo of Learned *Doctors*, who may fear, that in acquyring *a not precipitating Elixir*, he hath loſt a *Stomack &c. corroborating Medicine.* Or, he ſhould have proved, 1. that the Stomachick energie of Spir. *Sulphuris*, and *Spir. ſalis marini*, are all one. 2. That the Materialls will not be adufted, by the *Spirit of Salt*, in the twofold diſtillation, ſeeing there is ſo much of it. Which to doe aright; would not a little buſie all the *Philoſophy*, lodged within his *Pericranium*: because

cauſe he behooved alſo to maintain, all *Volatils* and all *Alcalies*, to differ little or nothing from one another, in their innate Vertues. 3. Make Apologie, for his ſo preſumptuouſly and conſiderably altering that *Preſcription*, wherewith ſo many learned *Doctors* have been ſo long ſatisfied.

8. *Pag.* 249. He attacqueth *Medicines prepared of Steel*; in which encounter he taxeth *Dr. Willis* (whom he deſigneth *the Learned Oxonian Author*) of *writing erronious Ætiology*, as *Pag.* 118. he found *Sennertus guilty of great Hallucination*; tho himſelf was never worthy, to be *Amanuenſis*, to either of them. 2. He accuſeth "Steel powders, of the inavoidable inconvenience, "through their weight, to deſcend to the bottom "of the Stomach, and ſome times to penetrat "through the pores of the inward Tunic --- a- "gainſt which the Magnet ſtone powdered and ex- "hibited internally, is the only Antidore. Not "many years ſince, I diſſected one, that expired "of a Dyſentery, againſt which, an Apothecary, "had for many dayes, given two and three (*which "he ſhould have called* five, *for ſaving* Inke and "Paper) drahms of Croeus Martis aſtringens, "for a Doſe; the ſame preparation, that is ſo "much extolled by my Author, (*viz.* Dr. Willis.) "Upon the ſeparating the Tunica rugoſa from "the middle Tunic, I detected a vaſt quantity of "red ſand; which upon examination of what had "been taken (where he ſhould have explained

himſelf, whether he meant, taken in by the Patient, or out of the Patient) "I found, was ſome "of the Crocus Martis, this ſkilfull Glyſter-Pipe "Doctor had given,

Tho this *Dr.* doth write, as if *he were the man, with whom Knowledge and Skill ſhould die*; and as if his *Fate* were the *Elyſium* of *Hermes*, *Hippocrates*, *Galen*, *Helmont*, *Spigelius*, *Bartholinus*, and the reſt of the truely *Medicinall Magnates*; yet we muſt take liberty, a little to Animadvert upon thoſe his *accompliſht Poſitions*, by theſe *Obſervations*.

1. Thus he cenſureth the greateſt *Doctors* and *Chymiſts*, who have much eſteemed and uſed thoſe *Powders*; and eſpecially *Chalybs præparatus cum ſulphure*, which (nor any of the reſt) being well levigat, firſt in a Mortar, and then upon a Stone, can never penetrat the *Tunic* of the *Stomach*; ſeeing they are by Arts utmoſt poſſibility, deprived of their penetrating aſperitys and *Angles*.

2. It would ſeem more conſonant to Reaſon, that the Patient, in ſuch a caſe, ſhould ſwallow a bit of the *Magnet Stone*, rather than its Powder, which laſt, through the ſame Pores, can not but paſs in betwixt the *Tunics*, and increaſe the Diſtemper mentioned; unleſs they were Buoyed by a *Water-Spunge* (ſent thither, by the *Elaſtick* power of a ſmall *Whale-bone*) whoſe levity would keep them from ſinking into the *Pores*. Which this great *Diſcoverer*, did not advert to, by Bailing them

them. All that the Learned *Dr. Willis* (whom this *Dr.* thinketh to outdoe) ſayeth to this purpoſe (*de Morbis Convulſivis, in explicatione præparationum & effectuum, Medicamentorum Chalybeatorum*) is, *Periculum eſt, ne Chalybis particulæ, cum ſatis diſſolvi nequeant, tanquam Vitri ramenta, viſcerum membranis impingantur, iiſque pertinaciter adhærentes, ulcera & tormina lethalia producant, quod accidiſſe novi.*

3. This *Antidotall Advice* of his, is only paralelable by that, given to a *Tailor*, who having ſwallowed a *Bodkin*, was adviſed to ſwallow its *ſcabard*, that *this* might keep *that* from wounding Him.

4. It is undenyable, that no Apothec. or Chirurg. was ever ſo fortunat, as this *Dr.* who preſcribeth an infallible *Antidot*, againſt a *diſeaſe*, which he never ſaw, nor knew, ſave once, and that after the Patients death. This *Dr.* would ſend for the Pretender to ſkill in Chirurgery, who intended the Cure of a Malefactor, who had hung a quarter of an houre, by giving him a new *Kick*, in order to the Launcing of the *Jugular Vein*, which he durſt never adventure upon, in a living Man; and then he ſhall have one ſutable to his own Humor.

5. Surely the World is much more obliedged, to the Learned *Zuelfer*, who (*Pag. 6. Append. ad Animadv.*) tells of *his cureing, by a Vomitive Medicine, a Noble and Learned Patient, who was very*

very much Diſtempered, untill he did, by vomite and ſtoole, evacuat a really vaſt quantity of matter; which occaſioned *Zuelfer* to inquire, *if he had been accuſtomed to eat Aſhes*? To which the Patient anſwered, *No*; but that *he was accuſtomed to take a precious* Powder (*ex Magiſter. Perlar. Corallorum, &c.*) *which was ordained for him*, and not by any *Glyſter*-Pipe *Dr.* but a *Harveyan*.

6. If this Story of *Dr. Harveys* be true, where is the *aſtringent faculty*, of the *Crocus Martis*, prepared for that uſe?

7. The *vaſt quantity of Red Sand which he detected*, was the likeſt to *Parturiunt Montes*; and *was ſome of the Crocus Martis*, exactly reſembleth, a *ridiculus Mus*, which might be ſooner converted into a *Rat*, by *Digeſtion* in the New *Laboratory* (of *Medela Medicorum*) than *Red Sand*, into *Crocus Martis*, or contrarywiſe.

9. *Pag.* 252. He furniſheth you, with *a more innocent Medicine of the ſame nature*, informing *Thoſe that conſider Salts as diſſolvable* (as if there were any man of another Opinion) *prefer Vitriolum Martis, before* Powders (by which expreſſion this *Dr.* declareth, that he doth not beleeve, that the *Sal Chalybis*, containeth any of the Atoms of the *Chalybs*, reducible into a powder, not diſſolvable amongſt water) and then *he denyeth the Vitriolum Martis* (or *Sal Chalybis*) *to be a reſtorater of Oppilations becauſe it is ſo prevalent in an obſtructive and aſtrictive quality*. Which he proveth,

proveth, by *diſcovering it to you, as a great Medicine, for ſtenching Hæmorrhages, ſpitting of Blood, and immoderate Uterine-Fluors, both ſanguine and white.*

Here this great *Arcana-Monger*, giveth you two things, ſeriouſly to be noticed. 1. That one and the ſame *Medicine* (and particularly, *Sal Chalybis*) will not produce Diverſe, and really oppoſite effects; as *deobſtruat* and *obſtruct*. 2. He gratifieth you, with diſcovering *Sal Chalybis*, as a *great Medicine, &c.*

It ſeems this *Dr.* thinketh the *Archeus* ſuch a *Logar-head*, as can not Parie and *Wound*, with one *Thruſt*. And, that no *Arcanum*, can be *Ambi dextrum*. That he never knew how to preſcribe one *Cataplaſme*, which would Diſcuſs one *Phlegmon*, and Suppurat another. Neither hath he ſeen the *Lapis Infernalis*, make an Ulcer, where there was none; and (in the ſame body) be the chief inſtrument in cureing an old Ulcer. Neither hot *Camphire*, mixed with *Ung. album*, to make it more cooling; and with *Spirit of Wine*, to make this more heating. Nor doeth he beleeve, that one *Act*, may be both *Adultery*, and *Due-benevolence*; the Wife keeping the Tryſt, made with another Woman. Neither will he beleeve, the wiſeſt of men. *Prov.* 14. 13. *Even in Laughter the heart is ſorrowfull.* Nor, *Prov.* 1. 32. *That Proſperity can deſtroy.* Nor, (*Job* 20.22.) *That a man, in the fulneſs of his ſufficiency can be in ſtraits.*

straits. Did not the same *Justiciar*, *Gen.* 40. *deobstruat* (so to speak) the chief *Butler* into liberty, and *constringe* the chief *Baiker*, into the dry Earth. Neither beleeveth he, that *Antimony* containeth, not only a *Vomitive* and *Purgative*, but also a *diaphoretick* faculty. All which are alse much different, as the *deobstruating* and *obstructing*, which he will not allow to *Sal Chalybis*. Neither is it any Article of his *Creed*, that one Man may be a very knowing *Philosopher* and *Dr.* in his own and the *Vulgars* conceit; and yet an ignorant *Dunce*, in the Opinion of truly learned Men, who have alse much seen *Naturam operantem*, as, and observed *Her* Actions more, than himself hath done. He is also a stranger to that Maxime, *Multa dantur Medicamenta, nulla Remedia. Nam solus Medicus prudens et sapiens, ex Medicamentis Remedia facit: quia Medicamenti Anima, est occasio ipsum exhibendi.* That is to say, A knowing *Dr.* will both *reserat Oppilations*, and stop *Hæmorrhages*, with *Sal Chalybis*. Or, a Dose of *Laudanum*, given by an *accomplisht Doctorculus* (• especially *in articulo mortis*) will eternally stupify; and another Dose, given by a prudent and learned *Physician* (whether Dr, Apoth. or Chirurg.) will prove a very *Cordiall Narcotick*, and prolonger of life.

Moreover, all our Knowledge being *a Posteriori*, what knoweth *Harvey*, how any Medicine operateth within the body, when it encountereth different

different humors; One whereof it may hebetat, and by ſo doing, accidentally vigorat another. Or, that *Sal Chalybis*, having aſtringed or fixed a *Volatil*, and afterwards encountering the *fixed*, or another of the ſame kinde, may, by its operation thereon, again deobſtruat the *Volatil* (ſo to ſpeake) and let it paſs, As in the diſtilling, of *Butyrum Antimonii*, the *Corroſive ſalts* of the *Sublimat* (which had formerly fixed the *Volatil Mercury*) operating upon *Antimony*, doe deſert the *Mercury*, and permit it to revivifie. Or, *Sulphur Mineral*, in the artificiall *Cinnabar*, mixed with *Limatura ferri*, and put into a *Retort*, in a Sand-furnace, will attracque the *Limatura*, and deſert or let go the *Mercury*, which it alſo had fixed before.

Furthermore, might not this great *Spagyriſt*, allow to *Sal Chalybis*, thoſe two different Operations, upon the account of its retaining ſome of its *aperitive* Nature, which it once had; alſe well as affirme *Aloe to contain acrimonious and lixiviall parts* (as *Pag.* 229.) without *Calcination*. Or as he alledgeth, *Spirit of Nitre containeth Arſenicall fumes, from which he deſireth it to be purged* (*Pag.* 46.) never telling how it came by them. Or, may not *Sal Chalybis* (which is only *Chalybs humidè calcinatus*) retain ſome of its *aperitive Sulphur*, alſe well as *Sal Tartari* (tho never ſo well *ſicce calcinatum*) doeth its centrall and aperitive *Sulphur*, which after its *fuſion* in a *Cruesble*,

it communicateth to the *Alcool Vini*. Moreover, may not *Sal Chalybis* ſuſpend the uſe of its *Aperitive faculty*, untill it find a fit opportunity, alſo well as *Snailes*, common *flies*, and ſeverall other *Inſects*, *doe their Animal faculties*, in the *Winter*, and cold weather, till the warmth of the *Summer*?

But this *Dr.* is only a *freſh-water Alchymiſt*; for, if he had ever lainched (tho but two or three furlongs) into the *Ocean* of this *Art*, to have ſeen the Wonders of *Nature* and *Art*, he would have been cõvinced, by the *Steel-Needle* in the *Compaſs*; that as the *Load ſtone*, its two *Poles*, touching the two ends of it, doe make them aſpect the two *Poles* of the World, it may be very probable, that *Nature* hath beſtowed upon *Steel*, not only an *aſtringent*, but alſo a *deobſtruent quality*, or faculty, totally inſeparable from it; which the moſt of *Phyſicians* doe beleeve, experience having convinced them of its truth, and *Dr. Willis* homologateth the ſame, very directly, in the beginning of his forementioned Diſcourſe, thus. *Limatura Chalybis intus aſſumpta, ſanguini & Calcaria & frena ſimul adjicere videtur --- ab iſtiuſmodi medicamento incitatio longè potentius exeritur; quam reſtrictio.* But more particularly, a little after, in thoſe words (writing of *Crocus Martis aſtringens*, which is alſe much caſtrat of the *ſulphureous particles*, as the *fire* could doe) *Videtur imprimis, quod huic præparato, activitas quædam,*

quædam, qua ſe exerit, & virtutes ſuas, ſive obſtructiones reſerandi, ſive vaſa fibraſque viſcerum nerveas conſtringendi, --- intra corpus debeatur.

Likewiſe, *Zuelfer, in Animadv. in Crocos, &c Croci Martis aperientis virtutes, in ſolo ejus Vitriolo* (which is *Sal Chalybis*) *fundatæ ſunt; quod ipſum Vitriolum Martis, quadrante unius horæ in Crocum pulcherrimum converti poteſt* (yea in a few dayes, it hath become ſo, in my own pocket,) *patet itaque, quod Vitriolum Martis, longe efficacius ſit in operando, quam Crocus ille Aperitivus, in longe majori quantitate etiam adhibitum*

It is true that *Willis*, in the ſame Diſcourſe, ſeemeth to deny to *Sal Chalybis*, a reſerating vertue, in thoſe words. *Sal Chalybis, aliaque cum acidis præparata, à ſulphure in totum ſpoliata, ſanguinem nimis figunt.* Of which *ſulphur* (*Pharmaceut. Rationalis part. 2. Sect. 2. Cap. 5. de Anaſarca*) he writeth thus. *Sanguinis totam maſſam fermentat, vigorat, &c.* Therefore I wiſh, that he had more fully explained, how the *Chalybs* is ſo deprived of its *ſulphur*, by this *humide Calcination*; ſeeing he concedeth ſome of it to remain, after its *dry Calcination*, by the violence of Fire, in making its *Aſtringent Crocus.*

Who would not have expected, from this *Harveyan New diſcoverer and Unmaſker*, writing ſo Learnedly (as he thinketh) of *Sal Chalybis*, ſomething concerning the Striat, Cubic, Conic, Cylindriacal *&c* particles of *Salts*, whereby the

different pores of Liquids can be filled with different bodies, saturating one and the same Liquor, one after another. Of which before

My designe being only to show, the vaine and groundless pretensions, of *Dr. Harvey*, to skill in *Chymie*, I shall not add more, concerning *Crocus Martis*, its exerting, not only an *astringent*, but also a *reserating power*; which are not *contrary*, but only *diverse* Operations, for the most part. As, *Sal Chalybis*, its stoping a Dysentery, by its astringent faculty; and its reserating obstructions in the *Hypochondres*, in Melancholy-distempers. Both which may be very *atiologically* and rationally explained, by any who understandeth well the Doctrine of Fermentation, and the different Operations of Concrets upon one another; and their constituent heterogeneous particles, which exert diverse (not to say, contrary) Operations, and produce differente Effects, upon different Objects, as they encounter them. As when the *Sun* melteth Wax, and indurateth Clay.

10. Tho this *Dr.* doeth writ, like an Infallible, yet he knoweth not well what is *Acid*, and what *Alcalious*; as is most evident, from his words *Pag.* 141. of his *New discovery*. --- *The Remedies used successfully by those who have contracted their distemper on a long voyage at Sea, are Acids* (which, according to *Zuelfer*, are *Acido-salia fixa*) viz. *Juice of Limons, Oranges, Tamarinds, Spirit of Salt &c. On the contrary, the experien-*

experience Spirit of Scorvey Graſs, of Sal Armoniack, and others of that nature, detrimentall. Hence, a juvantibus, which are Acids, evinces their blood to be Alcalious and Lixivial. So that I may ſafely conclude, that our Authors (viz. Willis) his Hypotheſis, is not only erroneous, but too ſcanty, ſince it only appoints Contemperatives, and Volatil Alcalies (a ſkilfull expreſſion, forſooth) for Remedies.

So, this Author doeth not beleeve, that *Sal Armoniack*, is rationally, by *Zuelfer*, called *Sal Volatile Acido-ſalſum, ex natura ſua. Append. ad Animadv. Pag.* 72. which is alſo the opinion of all knowing *Doctors*, *Harvey* excepted. As for the *Spirit of Scurvery-Graſs*, which is alſo *Acido ſalſus*, and ſo *Volatile*, as to be acquired by a very milde heat, and without *Calcination*, *Harvey* ſhould have given ſome reaſon, for his oppoſing it, and the other, to *Acid*, which deſtroyeth the *Alcali*, *& contra*, according to his firſt *Theorem*, *Pag.* 47. and for alleadging, ſuch an affinity betwixt it and the *Alcalious* and *Lixiviall blood*, which it will not better, by deſtroying that quality in it. Moreover, ſhould he not have told wherein this *Alcalious* and *Lixivial* temper of the Blood doeth conſiſt, and how it cam by it, eſpecially at Sea, where it could not be calcined, ſo well as on Shore? where is leſs Water, and more Fire.

11. Concerning *Acids*, he writeth, *Pag.* 82. *Acids are either Natural or Corrupt. The former bears*

bears the part of a conſtituent Principle, in all naturall bodies. And Pag. 83. *There are ſome Acids, that are Corrupt, as Apples and Pears, when they begin to rot, ſo Fleſh-meats --- Beer, Syrups, Milke, Wine. --- But, what is more, Bodies that are primarly Acid, are ſubject to be converted into a corrupt Acid, as appears in the juice of Limons, Oranges, &c expoſed to the Rayes of the Sun.* To which any ordinary Apoth. may add yet more, *viz.* That they will be ſo altered, if put into the Centre of a *Dung-Hill* (for which, Sir, doe not call us ſlinking and nefty, as your *accompliſht Brother Phyſician* hath done) whether the *Suns Rayes* cannot reach.

Had he not writ more rationally thus? *Acids* are either. 1. *Naturall*, or *Praternaturall.* The Naturall, are either moſt manifeſt, obvious, and the conſtituent parts (not *Principles*, as he wrote) in Naturall Bodies, as the *Juice of Limons, Oranges, &c.* 2. Or Latent, and only diſcoverable by [1.] *Diſtillation*; as in *Honey, Blood, &c*, which is a Principle, properly, according to the common Opinion. (2.) Or by *Fermentation*; wherein the *Preternatural*, is made to appear, as in *Milke, &c*, when the *Sal fluorum adipiſcitur*, or becometh fluid (that is, diffuſeth it ſelf through the whole Liquor) which is, 1. either in bodies which have no manifeſt *acidity*, as recent *Milk, &c.* Or 2. in ſuch as have a manifeſt *acidity*, as *juice of Limons &c.* Whoſe Salt

Salt (by *Spagyrists* called, on of its *Principles*) becometh more *fluid*, by Fermentation, which maketh *Harvey*, his *Corrupt Acid*.

12. He writeth. *Pag.* 142. *Willis, his Quinary of Principles* (*Spirit, Sulphur, Salt, Water, Earth*) *are superfluous.* --- *for, a* Spirit *being a compositе of* Salt, Sulphur, *and Mercury, signifieth it self to be a* Principiatum, *and not a* Principium. And this he proveth by *Spiritus Calcis* (which is an Artefactum) *in the process whereof, the alcolised Spirit of Wine, being often abstracted from Calx vive, its volatil salt is refixt* (which formerly he proved to be *fixt salt*, rendred *Volatil*, by the admixtion of *Sulphur*) *and detained by the Alcali of the Calix*; *so that, at last, nothing passeth the Alembick, but a pure Lymph.* Having forgot what he wrote *Pag.* 123. *Affuse Spirit of Wine, upon Calx vive, after a short digestion abstract it, and some part of the fixt salt will be volatilised, and sublimed with the sulphur of the foresaid Spirit.* What strange Doctrine is this? for he can not fix the *volatil salt* of *Spir. of Wine*, without often obstructing it from *Calx vive*, whose *Alcali* refixeth and detaineth it. Yet he affirmeth that *a short digestion, of the same substances together, will volatilise some part of the fixt salt of the Calx.* Where is there an *improbable*, if not here? But the expert *Zuelfer* (*in Animadv. in Append de Salibus Theriacal.*) could not extract any *Salt* out of *Calx vive* (nor can this *Dr.* prove, that

that himself hath done it) not separat from it, one grain of a *volatil Salt*, once added to it, for to be fixed by it. Likewise, *Zuelfer* knew not how to volatilise *Salt of Tartar* (and far less, the *Alcali of Calx vive*) by *Spirit of Wine*. For (*Pharmacop. Regia* Pag. 246. 247.) he affirmeth, that *it can not be volatilised, but by frequent deliquations, and distillations, untill it be all brought over.*

The honorable *Mr. Boyle*, in his *Chymista Scepticus*, refuting the ordinary and naturall *Chymical Principia*, he taketh the Spirit of *Box wood*, and resolveth it into two Liquors, of very different operations (as the *Acid* and *Alcali* are) but this *Mixer of Quadrata Rotundis*, taketh the artificiall *Spirit* of *Calx vive*, made of the *Alcoolised Spirit of Wine*, and a thereto most heterogeneous *Artefactum*, viz. *Calx vive*, to make good, his *unprincipling* of the Spirit, which is ordinarly elicit by Dittillation, out of naturall Concretes. I call *Calx vive*, an *artefactum*, seeing from *Harveys* own words, it is very probable, that the *Alcali* of the *stones*, have fixed some of the *Sulphur* of the *Coals*, *Wood*, or *Peats*, &c whereby they were calcined, and made *Calx vive*.

Is not this the way to thinke *Dr. Willis his Horse is a Mare*, wherewith *Harvey* (Pag. 131. of his *New discovery*) deriderh *Willis* his *Probabile*; and that immediatly after he had very much commended him as the *English Fernelius*, and *his Modesty*

Modeſty, *in only propoſing*, Carteſius *like*, *his Hypotheſis*, *as a Probabile*. Is not this ſufficient ground of fear, that when the *New Colledge* of ſuch Alchymiſts (projected by *Medela Medicor:*) ſhall ſet their Laborator on worke; and one ſhall deſire to buy, ſome of the *combuſtible Sulphur*, of *Sulphur Minerale*, he ſhall be cheated with the *Balſam*, made of the *Flor: Sulph:* and *Spir:* or *Oyl of Terebinth*. I wiſh that ſuch great Spagyriſts, would. 1. Try their ſkill, in ſeparating the foreſaid *Sulphur*, from the reſt of the conſtituent *Parts*, or *Principles*, of *Sulphur Minerall*, without the addition of any extraneous and Sulphureous body (of which, elſe where we made mention, and of our unſucceſfulneſs therein) and then I am confident, if they ſhould acquire it, they would deſerve thankes, for an excellent Medicine. 2. And give irrefragable reaſons, for *Sulphur Minerale*, its not being, by ordinary diſtillation, reſolved into *Spirit*, *Sulphur*, and *Salt*, as other Concretes, commonly, are.

13. *Pag.* 47. He ſets down 5, *by him received*, *Hermetick Theorems*; ſo as Ignorants may thinke them, of his own Invention; ſeeing he tells not from whom he had them. The 5 whereof is, *That the vomitive*, *purgative*, *or attractive faculty of bodies*, *doeth emanat from their Volatil Salts &c.* Which he ſtole from the Learned *Zuelfer* his *Animadv. in Extract a*, where he writeth *Vis purgatrix*, *non tam in ſale fixo*, *quod ex*

vere & legitimè combuſtis, aut in cinerem redactis, eruitur, quam in ſale verum eſſentiali. quod proprie vegetabilibus non crematis ineſt, fundata eſt. But this *Plagiary* and ignorant *Scribler*, rejecteth *Sal eſſentiale* (not knowing that it is different from both the *Alcali* and *Volatile*) and ſubſtituteth *Sal Volatile*, which (as the ſame *Zuelfer*, *Append. ad Animadv.* Pag. 47. hath well obſerved) is very ſcarce in *Vegetables*. *Volatilia ſalia, & quidem pure ſulſa, ut plurimum ex Animalibus depromuntur.* And I doubt much, if *Dr. Harvey* had ever a *purgative Medicine*, out of the *Animal Kingdom*, ſave a Draught of *Diamerdis Liquida*, which would rather prove an *Emetick*.

14. His 1. *Hermetick Theorem*, *All Alcalies are contrarie to Acids, and conſequently doe extinguiſh them*; and alſo his 2 *All Volatils are fixed by Acids*, he hath ſtolne from *Zuelfer*, his *Animadv. in Salia Theriacalia*.

15. Pag. 45. His 3 *Theorem* is, *There is no Alcali, but in its intime and centrisall particles, contains a moſt acid corroding and perforating ſalt.* And Pag. 83. he writeth, *All ſalts (not being Alcalious) though the Acid lyes dormant and hidden in them, by the force of Fire, through a Retort, doe deprom their Acids.* But he had writ more rationally thus; The *Alcali* lyes dormant, in all *ſalts*, not *Alcalious*, which are *Acid* to the Taſte, and by the force of fire are for the moſt part converted into an *Acid ſpirit* or liquor; as

Sal

Sal Marine, *Nitre*, *&c.* And *Zuelfer*, *in Append. ad Animadv. fol.* 73. ſayeth of all *Alcalies*, *è quibus ſpiritus Acidi & corroſivi*, *deſtillatione nequaquam elici poſſunt.* Should not ſuch a pragmatick *Dictator* as *Harvey*, ſome way have proved *Alcalies to contain Acid ſpirits* (which his bare aſſertion doeth not) ſeeing he denyed a *deobſtruent faculty* to his *adſtringent Sal Chalybis* ? Out of which *Zuelfer* did, and any Artiſt may diſtill an *Acid Spirit*; which, by his 3. *Theorem*, *is perforant*, and conſequently *deobſtruent.* And in the ſame Pag. 48. *There is no Acid ſpirit or ſalt*, *but in its centrick principles is lodged a moſt ingeneous* Alcali. *Within the centrick of the Acid Oyl of Vitriol*, *there is an igneous and cauſtick ſalt.* The only reaſon whereof muſt be his 4 *Theorem*, viz. *Volatil ſalt is nothing but the fixt ſalt of any body volatiliſed*, *by the admixtion of ſulphureous particles.* For writing of which, he hath, porbably, taken occaſion, from *Dr. Dan. Coxe*, his words (in his *Diſcourſe*, *denying the praexiſtence of Alcaliſate Salt in any ſubject*, *before its being expoſed to the action of the Fire*) *Oct.* 24. 1674. *Vol.* 9. *of the* P. *T.* Pag. 152. viz. *Alcali ſalts doe reſult from the combination*, *or union of the ſaline* (which afterward, immediatly, he determineth to be *Acid*) *and ſulphureous principle.* The Pag. 154. he confuteth the prerenſions of *Acid ſalts*, to an intereſt, in this new production.

Dr. Harvey Pag. 122. of his *New Diſcovery*, proveth

his forementioned Aſſertions; to which he might there have added (if then it had come into his Pate) *The fixt Salt, is nothing but a volatile Salt, whoſe Sulphur is divided from it* (as Pag. 124. he tells how) *and in its roome ſuccedeth Earth* (which muſt be by the vertue of *Hocus Pocus*, ſeeing the *Alcali* was, by *lixiviation*, already ſeparat from the *Earth*) *which is an immature ſalt, which by digeſtion eaſily paſſeth into a ſaline body.* Is not this all one, as to ſay, a *Horſe* is a *Mare*, being *caſtrat*; and a *Mare* is a *Horſe*, having reaſſumed *tria*.

16. *Pag.* 123. He proveth, *Earth to be an immature* Salt, *which by digeſtion eaſily paſſeth into a ſaline body*, thus. *The terra damnata of Vitriol, tho very well waſht from its fixt ſalt it contains, yet being expoſed to the warme Sun, for ſome long time, and then waſht over again, yeelds a conſiderable quantity of Vitriolat ſalt.* Which he proveth (as he thinketh) *not to be extracted out of the Air, but ingendred by digeſtion of its ſubſtance --- yeelding new ſublimable parts. So that the fixt ſalt is not only the firſt matter, but alſo the ſole conſervative, and nowriſher of the Volatile.*

May not a very ordinary *Philoſopher by fire*, thus animadvert upon thoſe Aſſertions. 1 He acknowledgeth the *Terra damnata Vitrioli*, to be the only *Domicilium* of the *fixt ſalt*, which hath been waſht out of it, and alſo of the New Vitriolat ſalt, which the ſecond time it yeeldeth, ſtill remaining

maining a *Terra damnata*, as before. 2. He denyeth this New *ſalt*, to be extracted out of the *Air*. Tho the Learned *Zuelfer*, *in* Animadv. *in Colcotharis indulcati præparationem*, doeth writ far more Learnedly, and contradictorily to this Author. *Colcothar*, *vel Caput mortuum* Spiritus Vitrioli, *aliquandiu Aeri expoſitum* (tho in a Dungeon) *ſal præbet quandoque candidum, quandoque purpureum, aſpectu pulcherrimum, quandoque nitroſum, quod aliquando in copia acquiſivi, & penes me aſſervo* (which is not to writ upon truſt, as *Harvey* doeth, dreaming) *Colcothar ſalis nullius corroſivi particeps eſt, ſed ſolam vim ſtipticam & attractivam, ſive magneticam obtinet, & deinceps aliquandiu Aſtris & Aeri expoſitum, ab attracto ſale ex Aere, vel exhalationibus in eo contentis, aperitivam virtutem nanciſcitur.* Thus alſo he affirmeth, *Crocus Martis aſtringens*, to become *aperitive*, in his *Mantiſſ.* Moreover, he *forbideth the waſhing of the Terra damnata Vitrioli* (which *Harvey*, contraty to his own *principle*, *of making Medicines without much expenſe*, *and in a ſhort time*, will have very well waſht) *leſt thereby it be deprived of its ſtiptick and attractive power.* Is it not admirable, that this *Dr* who hath in his *Theorem*, ſo peremptorily ſpoke, of *the centricall particles of Acids and Alcalies*, hath not allowed them, a *ſpecificating power*, over what they extract out of the *Air*, ſeeing no man denyeth ſuch a ſpecificating power to *Vegetables*, over what they extract

tract out of the *Earth*, for their own conſervation, and perpetuation. Not to mention the *Reſuſcitation of Vegetables, out of their own Aſhes*; which ſome eminent *Artiſts* have ſpoke of. Moreover the *fallowing of Ground* (whereof *Will. Simpſon*, in his *Appendix to his Hydrologia Chimica*, *Pag.* 331. hath ætiologically, very well writ) the letting it ly *Ley* ſome years, and the *Lyming* of it, to fertilize it, doe demonſtrat the attraction of the *Spiritus Salino-Sulphureus*, *vel Nitroſus*, diffuſed through the *Air*; which all *calcined* bodies are able to doe, alſe long as they retain their innate, or ſeminal *Formes* (which are the ſame, with *Harvey*, his new *intime*, and *centricall particles*) or properties, which are nor ahwiſe *deſtroyable* (ſo to ſpeak) by *Vitrification*; as is evident. (1.) In *Vitro Antimonii*, which is more vomitive and purgative, than the *Crocus Metallorum*. (2.) In *Antimonio Diaphoretico*, which (tho never ſo cloſely keept) in proceſe of time, recovereth its *Antimonial* vomitive and purgative faculties (to the impairing of the *Diaphoretick*) which are eaſily fugat again, by a new *Calcination*. 3. Were it not more conſonant to Reaſon, and more intelligible alſo, to ſay that *Antimonium Diaphoreticum*, recuperateth its vomitive and purgative faculties, by its centricall particles, their ſpecificating of ſome thing, extracted out of the *Air*? And, that in the *Deliquation* of *Sal Tartari*, the moiſture it contracteth

eth, is by its attraction of the Air, or ſome thing in the Air; than that it is engendred of the *Sal Tartari* (or of the *Antimonium Diaphoreticum*) *by digeſtion of its ſubſtance* [a moſt ridiculous expreſſion. and unbecoming a pretender to Philoſophy; who ſhould rather have ſaid, --- multiplication of its ſubſtance, by the appoſition and aſſimilation of aliment] As a *Pear* or *Aple* tree, graffed into a *Cherie*, or *Haw-Thorne*, *&c* doeth the ſecond time, as it were, reſpecificat the aliment, extracted out of the *Earth*. So that upon the ſame *Tree*, many ſorts of *Fruit* have been ſeen. 4. May he not allow *irradiations*, or *effluviums* to *Colcothar*, upon the *Air*; or to the *Air*, upon *Colcothar*, alſe well as he doeth to the *Volatil ſalts* of *Purgatives* [*Pag.* 31.] upon *noxious humors*. 5. *Rain Water* being more fertilizing than any other, demonſtrateth that it is more impregnat with the *ſalino-ſulphurous ſpirit*, diffuſed through the *Air*; which I beleeve the *Alcali* to attract unto it ſelf; and the *Volatile ſalinous* or *ſulphurous* to go unto it, by *evaporation*.

17. This *Dr. Harvey*, muſt alſo ſhow himſelf, to be a great *Mineralogicall Spagyriſt*. For (*Pag.* 45.) *Beleeve* (without his probation) *Potent Acids*, *the ſole diſſolvers of Mercury*, *and capable of arreſting its fugitive particles*. Wherewith he ſhould not have troubled the Preſs, untill he had refuted *Zuelfer*, " In Mantaſſæ Spagyricæ, Pharmacop. Regiæ annexæ Cap. 7. de Mercurio. ---

" Eſt

" Est Liquor Mineralis, --- omnibus metallis
" cognatus, præcipuè Auro --- benigno calore,
" & Vulcani foru, tam arcto fœderis nexu uniun-
" tur & ligantur, ut ex illis unum tandem insepa-
" rabile & perfectum corpus fiat, verum Aurum
" Philosophorum. *To which, and the true know-
ledge of the* Art, *this Dr. is a great stranger.*

Moreover, Pag. 52. " In Turbith Mineral, it
" is the volatil salt of Mercury, and no other con-
" stituent principle, is here coagulated: because
" performed by its opposite, a fixing Acid. Its
" experienced not so capable to Amalgamat the
" nobler Metals (*which, certainly, must be,
" when it is* revivified *from the* fixing Acid) be-
" cause thereby somewhat prefracted, through the
" abatement of its vibrating and penetrating fa-
" culty. Thus *Dr. Harvey.*

But should not this *Dr.* 1. have set down the manner of producing or separating, the *Volatil salt* of *Mereury*; and not have so confidently asserted its *præexistence*, without a modest Probabile? seeing *Zuelfer*, *Append. ad Animadv.* Pag. 70. writeth --- *Vana jactantia quorundam Chimicorum est, qui Metalla in sua tria* Principia *realia*, *Sal*, *sulphur & Mercurium*, *vere solvere fatuguxt.* 2. Should he not have told what became of the other constituent *parts*, or *Principles*? 3. shew'n how they did all meet again, when the *Mercury* is revivifyed, with his forementioned abatements. For my own part, I doe not remember,

ber, that I ever did read of *Mercury*, its loſing any of its native Perfections, by Preparation; but doe rather beleeve, that by ſeverall *Acids*, or corroſive bodies, this *Proteus* may be depurat and perfected, by their detaining any other *Metallick* particles, latent amongſt it. And my old and firſt *Maſter* [at *Paris*] *Dr. Hannibal Barlet* [no inconſiderable *Artiſt*] did ordinarily depurat it, by *Mercur. Præcipitatus ruber*, as he relateth in his, *La Theotechnie Ergocoſmique Sect. 4. de Metaux. Chapitre* 1. This Doctrine of *Harveys*, to an *Artiſts* ears can be no better Senſe, than was the *Ruſticks*, who having ſeen a Gentleman play upon a *Cicer*, afterward ſaid, *That he was tickling the Craige, and clawing the womb of a Green-Gooſe, making her ſkirle or cry.* Or, what another ſaid [in my own houſe] to his neighbour ſtanding behind him, when himſelf was looking to a large *Mirror*. *Ia. I ſie you in the other roome.*

18. He arriveth (*Pag.* 253) at the ἄκμη of his *ſkill*, whereby he profeſſeth his ability, to outdoe the Almighty, Univerſal, and *Proto-Spagyriſt*. For, *he knoweth how to prepare artificiall Minerall, Waters, ſo effectuall and pleaſant with all, that they ſhall, in a great meaſure, excell the Natural.* But as he hath not revealed (for I am ſure he hath not concealed ſo excellent an *Arcanum*) the manner of their Preparation; ſo hath he, wherein they excell the *Natural*, which I doe ingenuouſly communicat unto you; informing, that

it is only in his own *Value*. For, our Almighty and bountifull *Spagyrist*, hath mercifully furnished the *Universe*, with such *Minerall Waters*, as he hath prepared, *gratis*. But this *Dr*, must have 10 *ß* for his *Advice*, and money for his *Waters* also; which, tho he should refuse himself, yet his *Noster*, or *Gehasie*, must have it. All that the ingenious *Willis* (*de Morbis Convulsivis*) said concerning this Affair, was modestly thus. *Aquam communem Chalybis nostra præparationis Dissolutione impregnatam, vice acidularum naturalium, in magna quantitate exhibere soleo, & non raro cum optimo successu.*

They are true *Maxims*, *Ars est Naturæ imitatrix & suppeditatrix, ac perfectrix*. But I hope, the last, is only in relation to *Natures* defective, or redundant Aberrations; as when a *fœtus* is produced *sine Ano*, *aut Vulva*; or produced with moe *Thumbs*, or *fingers*, than is ordinary; all which I have seen: as also, in the Parioch of *Mid Mar*, one *David Mialeton*, aged about 50. whose left *Eare*, was farther down than his *Chin*. *viz*. at the lower part of a Bag, whose originall was, at that part of his *Head*, where his *Eare* should have been, with which he came into the World; and by which he heard but a litle; and did increase and decrease with the *Moon*.

But it seems this *Dr*. *Harvey*, is come of the *Egyptian Magi*, who, in *Moses* his time, *could doe the like with their Inchantments*. And he is more

more *vain* than *the Vanities of the Gentiles*, *which can not cause Rain*. He is also a ὑπερ *Cartesian Philosopher*. seeing the most obstinat of that *Sect*, in mantaining *Brutes* to be *Antoma's*, doe acknowledge it impossible to make such. For, it is a more infallible *Theorem*, than any of *Harveys Omne naturale præstat artificiali*, *in suo genere*, This windie *Scribler*, would therefore busie himself, in the prosecution of the use of the *Stentrophonicall Tube*, as it is begun by Sir Nicolas, *Pag*. 70. of the *Virtuoso Comedy*. That, seeing he hath done so much, in his *Family Physician*, for keeping *Patients*, from needless spending their money upon *Apoths*. he may also assist them, as to the *Drs*. by desiring them to use the said *Tube*, for preventing needless expence, for many visits, from his *Wo*.

Thus I have endeavoured to answere this *accomplishtly* pratleing *Scribler*, *Harvey*, whom any Chir. or Apoth. may looke upon, as *one with whom he dar not make himself of the Number*, *nor compare himself*: because this *Dr*. (and *Medela* Medicorum also) hath been so wise, as to censure and reflect upon, not only the Chir. and Apoth. but also the learned and famous *Physicians*, *whose measure hath not only reached unto them*, but much farther; and particularly the most ingenious and famous *Dr. Willis*, whose whole *Treatise de Scorbuto*, *Harvey* hath taken in hand to refute in one litle *Chap*. 10. of his *New Discovery of the Scorvey*; which are not worthy to be compared with

Dr. Willis his *Writtings*, that *Æsculapian Worthie*. But, seeing *England* never produced a more knowing, ingenious, and ingenuous *Physician*, his *Memory* will be most fragrant, alse long as man's Frailty continueth; whilst the *Memory* of such degenerous and invidious *Detracters*, shall be still roting and stinking, in the Nostriles of all ingenuous men, and *Artists*; amongst the chief of whom *Zuelfer* ought to be reckoned; out of whose *Writings* (for the most part) I have drawn the preceeding *Table of Salts*, wherewith I doe present you. From which, any may learn more solide instruction, than from all *Harvey's Plagiary Scriblings*.

I doubt nor of being Censured, for writing at this Rate concerning *Dr. Harvey*. But I hope all ingenuous Persons will excuse me: because I doe most seriously declare, that I have done it, alse much out of respect to the learned and Ingenious *Drs. of Medicine*, as to those of my own Profession. For the Insolence of those Men, (against Them also) is intollerable; as may appeare from *Dr. Harvey* his Respects (before mentioned) to the *Colledge of Physicians* at *London*, as also from those of the Author of *Medela Medicorum*, who in his *Postscript*, calleth the *Generality* of that worthie and famous *Colledge*, *the numerous dead weight*, *at every turne out-voting the rest*. The only Reason whereof is, their *not opening of their Gates* (as he wordeth is) *to admit himself*, *and such* invidious *Detractors* as he

he is; whose *Gifts* are impotent, in *making way for them*, who doe therefore most strenuously endeavour to raise their own *Reputations*, upon the *Ruines* of other Mens, whether *Dr. Apoth.* or *Chir.*

Having formerly propounded, to the *Ghost* of *Nicholas Culpeper* (that *Runagado Apothecary*, who turned a scribling *Translator*, and ridiculous *Astrologer*, and the first [for ought I know] who did set the *British Æsculapian-Temple* on *fire*, by his scurriolous *Scriblings* against the *Doctors*) many *Queries*, I thought fit to fill up the rest of this half-sheet, with proposing some of them, and others, to this *Incendiary* (and his *Complices*) against the *Apoth.* and *Chirurg.* that upon them, they may *whett* their *Accomplishments*. Assuring Him, that if his great *Doctor at* DRON, shall *consortionally* BUMME *Answeres* to them, as *modulat* by the *Apothecarian* small *Clyster-Pype*; he shall merit more *Precedency* (the want whereof he hath so much regrated) than by his *Discovering* of the *Scorvey*, or *Unmasking of Venus*.

Quer. 1. Why *Cantharides*, which doe vesicat but slowly, are so prejudiciall to the *Bladder*, when externally applyed; and to the *Spermatick Vessels*, when internally used? *Seeing Nettles*, which vesicat so suddenly, are most innocently used internally.

Quer. 2. Why *Red Roses*, & *Blue Violets* by Coction doe not communicat their native *Colours* to *Oyle*, as doeth *Chamomel*, *Dil*, &c, their *Greenness*?

Quer. 3. Why the *Eyes* of a *Cat*, and the *flesh*

of

Sea fishes, are *Luminous* in the darke? seeing the most scintillant *Diamond*, and *fresh-Water Fishes* are not so.

Quer. 4. Why the *smoak* of inflamed *Brimston* doe n *albify* a recent *Red Rose*? seeing its *Spirit* (which is only those *Fumes* condensed) doeth intend the *Redness* of the *Tincture* of *Dry Roses*.

Quer. 5. Why *Ol. Tartari per deliquium* maketh the *red Tincture* of *Roses*, and a *whitned Rose* (as was said) of a very *Green Colour*?

Quer. 6. How is it that *Aloe*, externally applyed, stoppeth *Hæmorrhages*; and occasioneth them, when internally used?

Quer. 7. Why the *Glass* of *Antimony* enjoyeth its *Vomitive* quality superlatively; seeing the most of Concretes, when *Vitrified*, doe lose their primitive qualityes, by reason of the destruction of their *seminal Formes*?

Qu. 8. Why the *Sheep* of *England* have no *Hornes*?

Quer. 9. Why *Wilde-Fowles* of one Kinde, are all of one Colour (both *Male* and *Female*: or the *Males* of one *Colour*, and the *Females* of another) seeing most *Tame-Fowles* are of different Colours.

Quer. 10. Why *Coneys* doe repare most frequently out of their *Holes*, to feed, only when the *Sea* is *Ebbing*?

Quer. 11. Why *Water-Fowls* extend their Legs, under their *Tailes*, in flying, seeing the most of *Land-Fowles* (the *Heron*, *Lap-wing*, and a very few others excepted) doe contract their Legs?

Quer.

Quer. 12. Why *Dogs*, which take pleasure in killing of *Wilde-Fowles* (or, inserving such as kill them with Guns) as *Plivers*, *Ducks*, *&c.* will eat none of their Flesh or Bones ?

Quer. 13. Why *Ærugo*, which lost its Greenness by Coction in *Ægyptiaco*, recovereth the same, when applyed to *Ulcers* ? seeing no such alteration happeneth to *Litharge* or *Minium* ; which also lose their Colours, when boyled into *Plaisters*, and applyed to *Ulcers*.

Quer. 14. Why the *Seeds* of, only, some *Trees* (as the *Ash*, *&c.*) and the *Flowers* of some *Herbs* [as *Tussilago &c.*] doe appear before their *Leaves*.

Quer. 15. Why the *Spirit* of *Vitriol* cleareth the *solution* of *Gals* and *Vitriol* [which is *Inke*] seeing the *Vitriol* made the *solution* of *Gals*, *Black* ?

Quer. 16. Why such as are *Gray-Haird* from their Infancie, are also *Reel-Eyed*, and very short sighted? I knew one of those, who could not read, without holding the Book within 3 Inches to his Nose, and the ends of the Lines, or side of the Book also.

Quer. 17. If there should be found in a City one illiterat Man, who having [without a previous *Prenticeship*, with any Artist] taken up Pharmacy and Chyrurgery, from the foot of a Doctor [whom he had *Jackmanized* for a while] and *extorted* himself, in a short time, from *Poverty*, into a *Rich condition*, at the Rate of deserving and geting the Title of *The greatest of Cheats* ; would it not be gross Impertinency in that Dr. (tho most basely disobliged by that Person, whom he had taught) therefore to

censure, and decry all true and honest Apoth. and Chirurg. as this *Dr. Harvey* and his *Complices* have done, and that for the, only alledged, Faults of some.

These are more proper Subjects, for a *Discovering* and *Unmasking Humour*, than the *Scurvy* or *Pox*, which have been far better discovered and unmasked by many before *Harvey*; concerning whose Disingenuity, I shall only give you two *Stories*, for a Conclusion.

In the specious Title Page of his *New Discovery* he promiseth *particular Observations*. Yet he concludeth his Book thus. *This Treatise being swelled beyond my Intention, am obliedged to omit particular Observations, and conclude* Finis.

The parasel of which Cheat, the same Author giveth in his *Venus unmasked*, the Title of his Twenty and last *Article*, is, *Our secret Cure*, consisting of eleven Lines; wherein he *censureth all the rest of the Cures* (tho he much commended them, in his Introduction) *as either too tardy, palliative, churlish, or incommodious. — They have occasioned us to Apostatize into this Secret and admirable way of profligating that Evil. Certò, tutò, & jucundè*; and then he *Apologiseth for not disclosing the same, and other fine things to the Reader*, and then addeth, *Finis*. Divers any *Whores-Taile*, give two more reall *Cheats*.

FINIS.

Errata, Page 12. Line 8. read, ratified. p. 40. l. 10. r. Oyl. p. 56. l. 13. r. endued. p. 71. l. 17. r. to the. p. 74. l. 26. r. was said. p. 77. l. 1. r. Corpuscul. p. 94. l. 9. r. smelling.